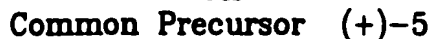




• Denotes the repeating stereochemical triad



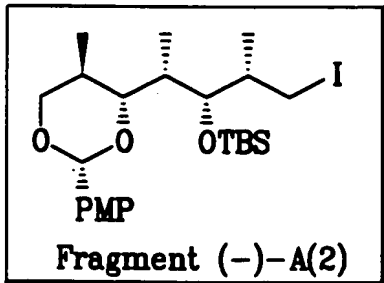
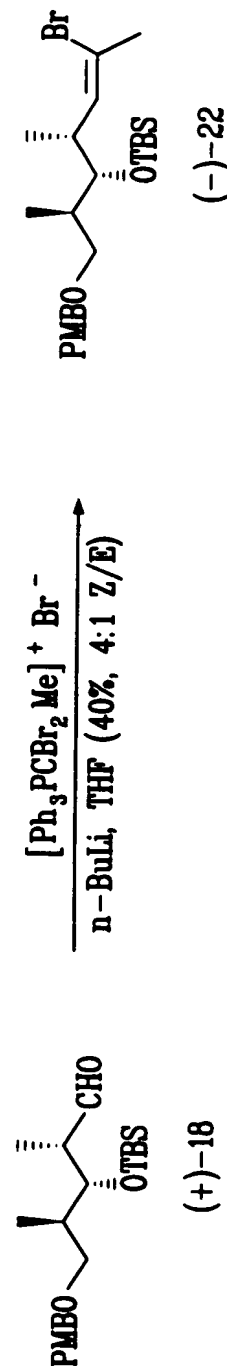
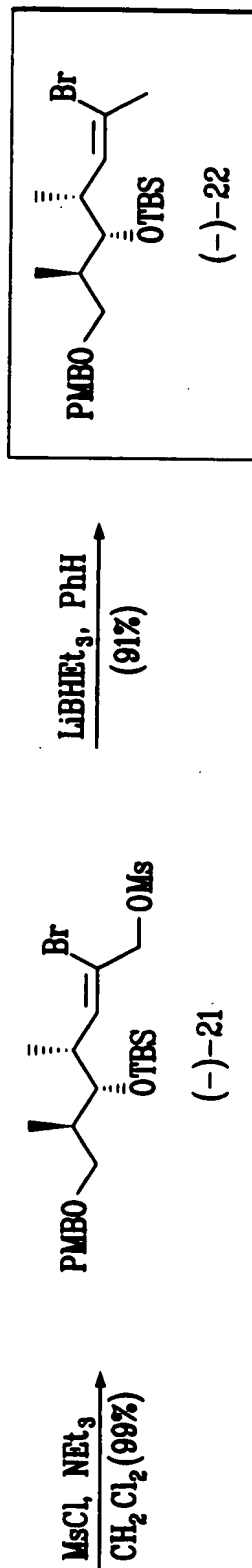
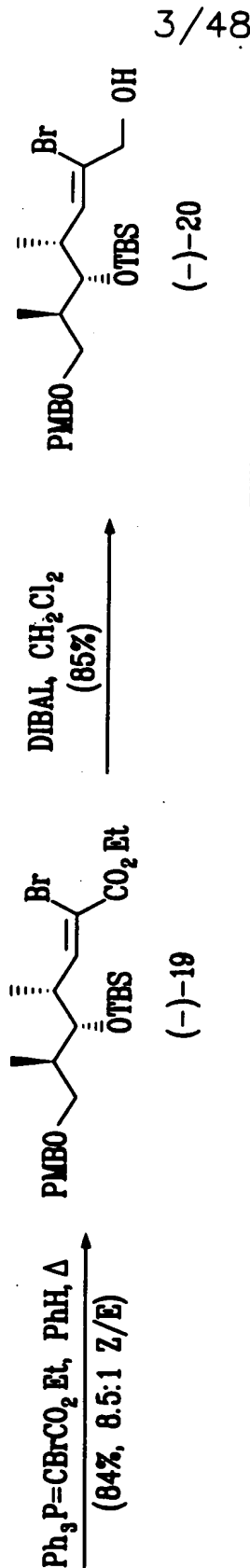
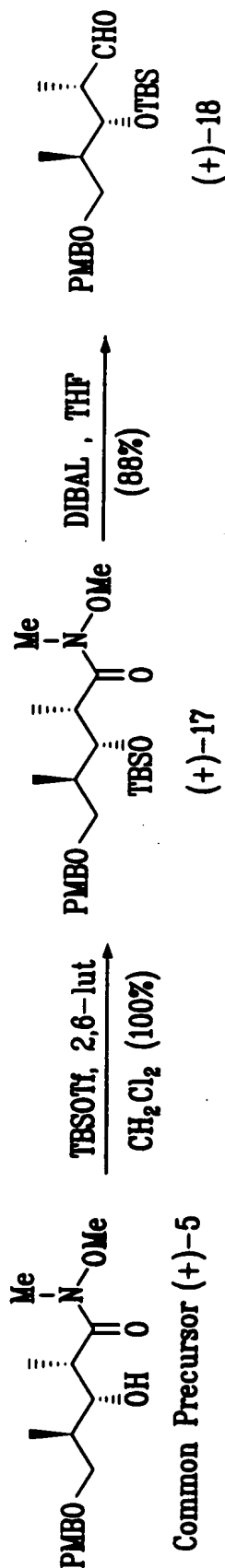
[illegible]

FIG. 4



Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

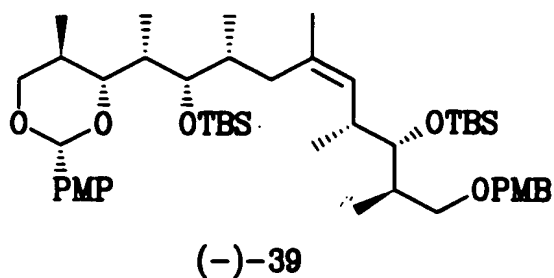
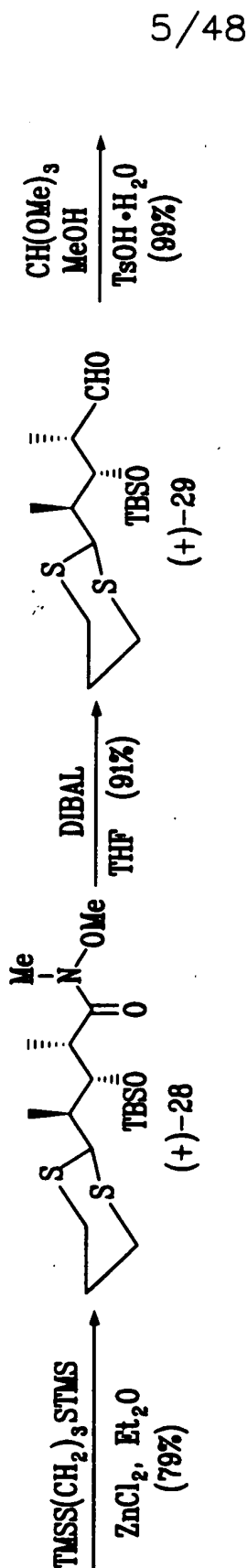
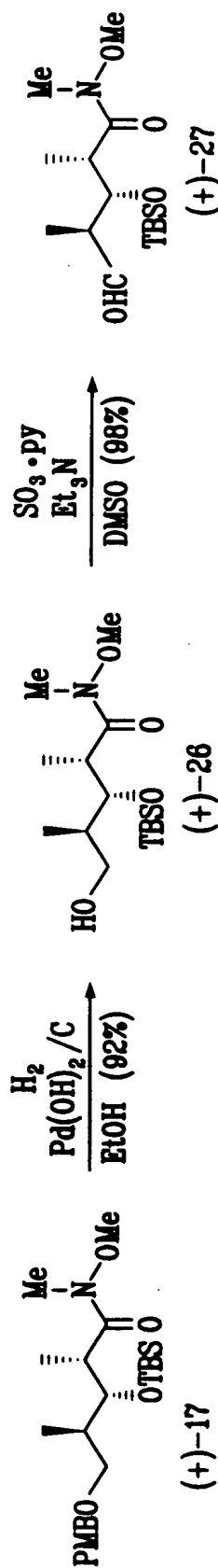


FIG. 7



5/48

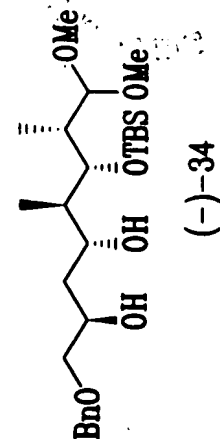
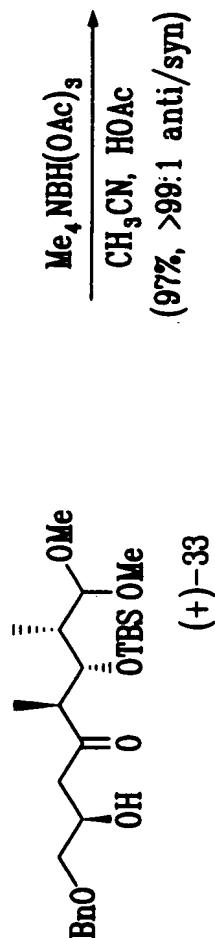
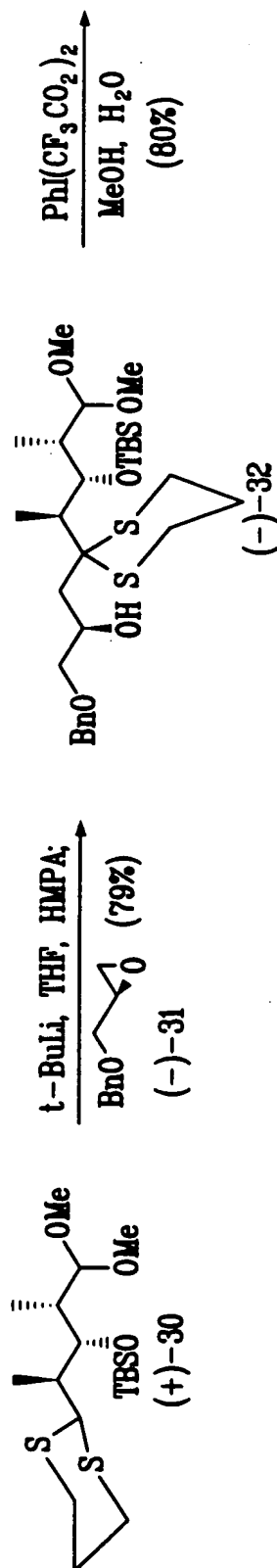
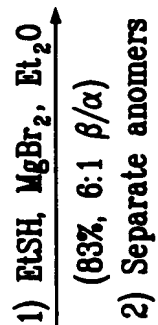
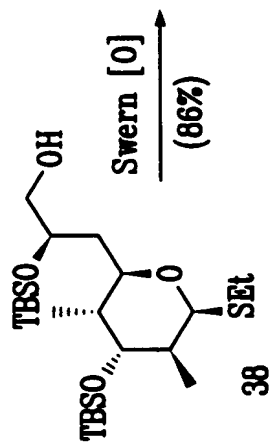
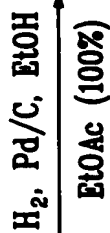
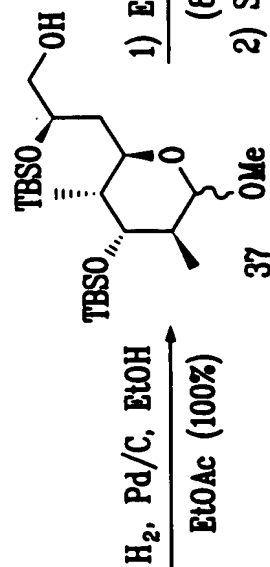
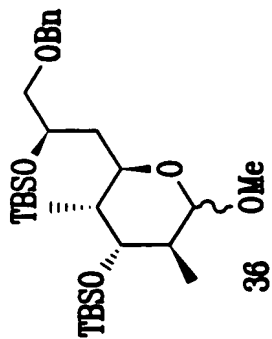
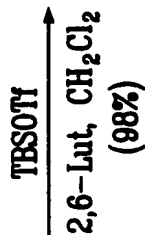
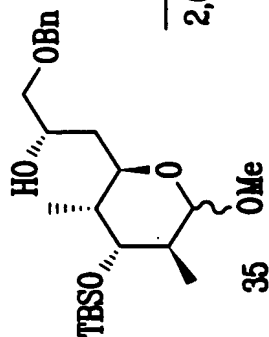
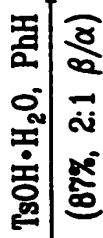
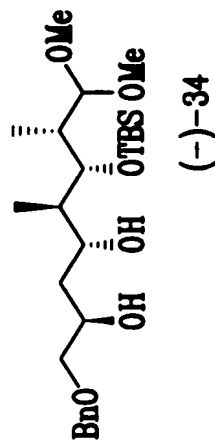
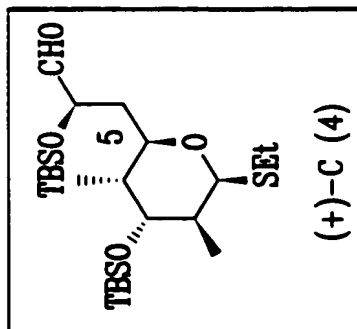
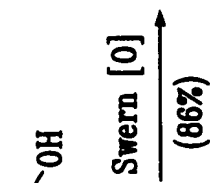


FIG. 8



2) Separate anomers



6/48

FIG. 9

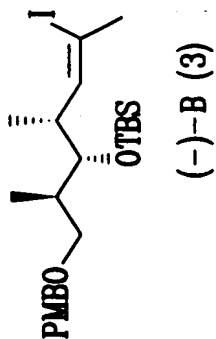
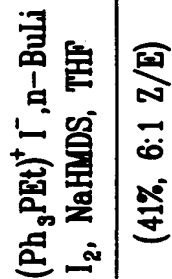
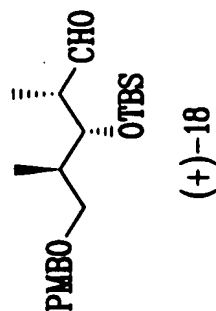
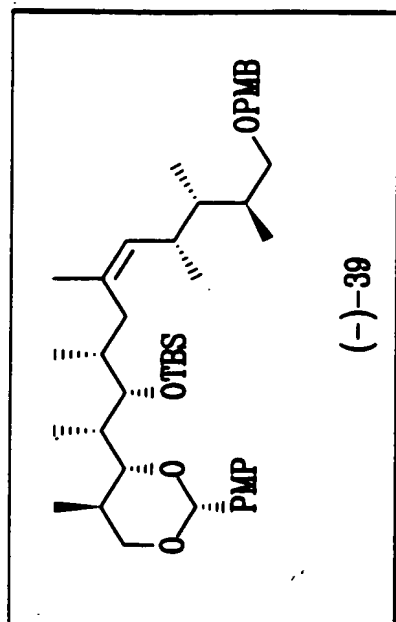
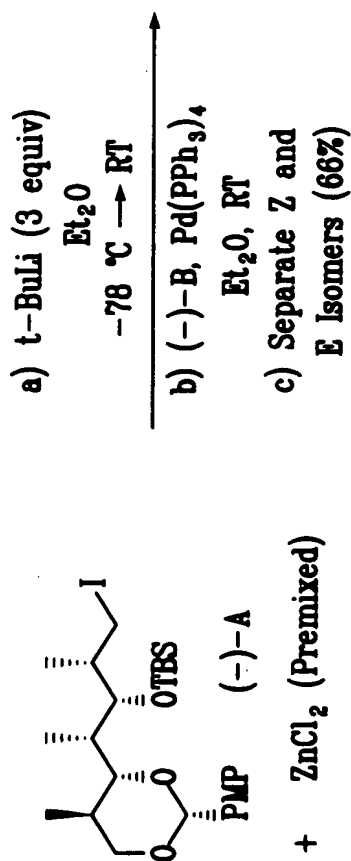
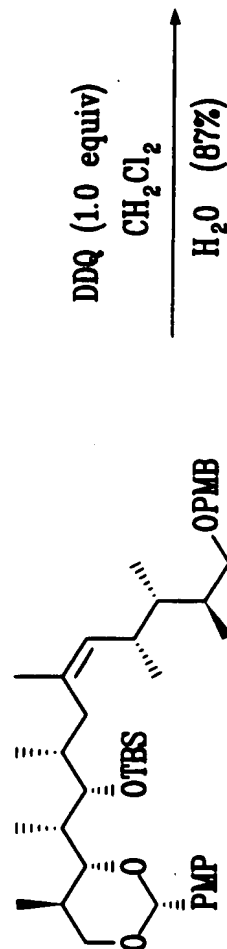


FIG. 10

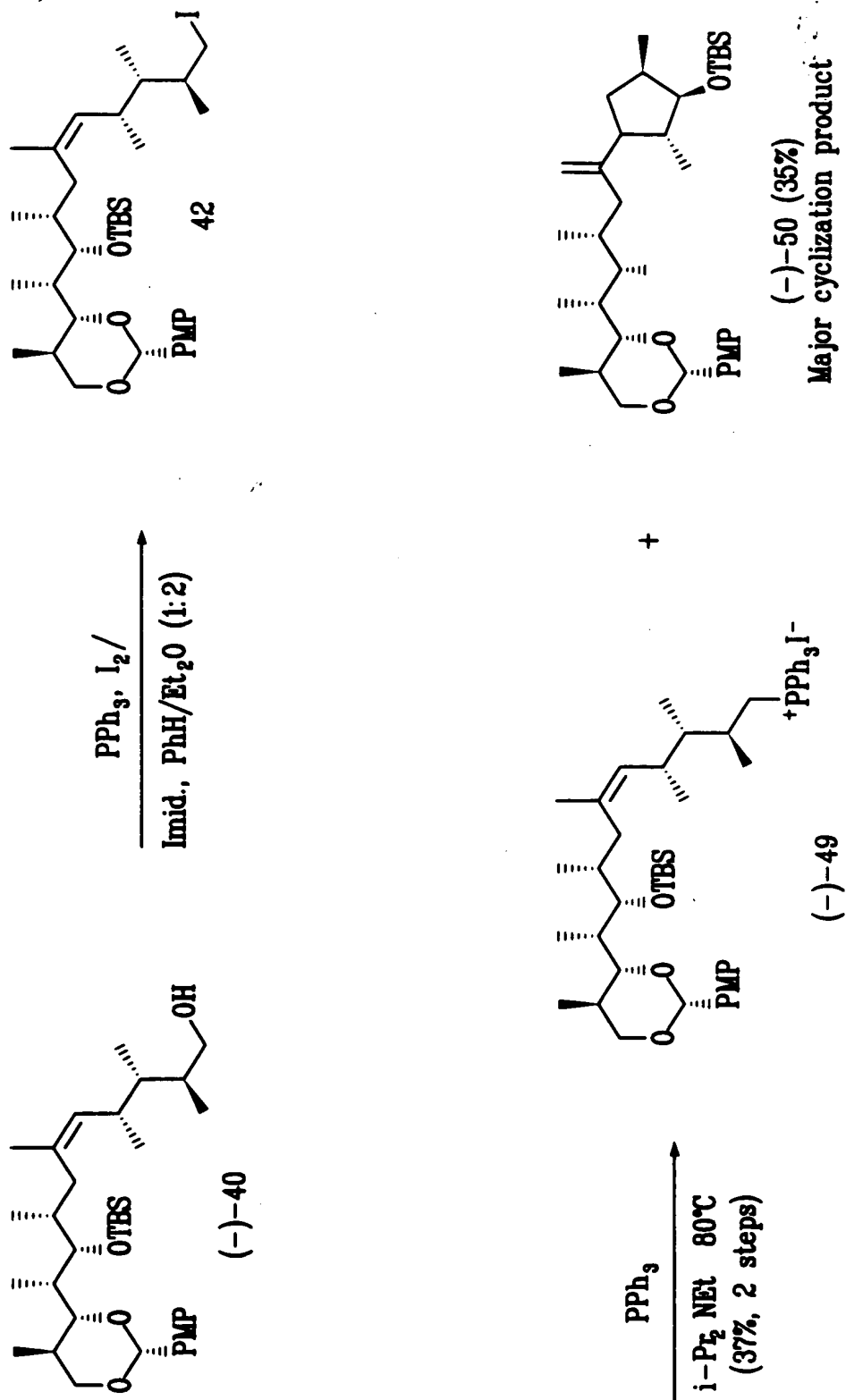


7/48

FIG. 11

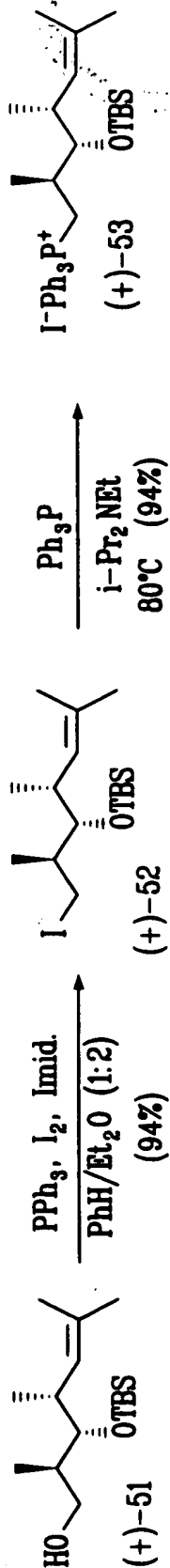


$(-)\text{-40}$





9/48



10/48

FIG. 14

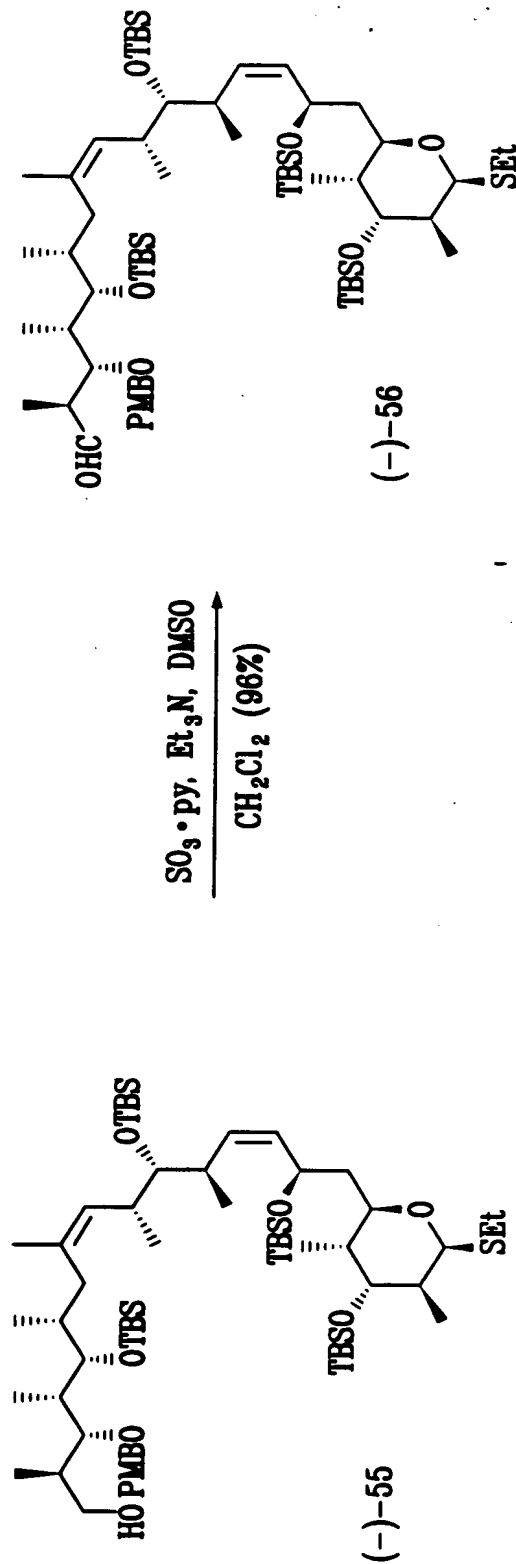
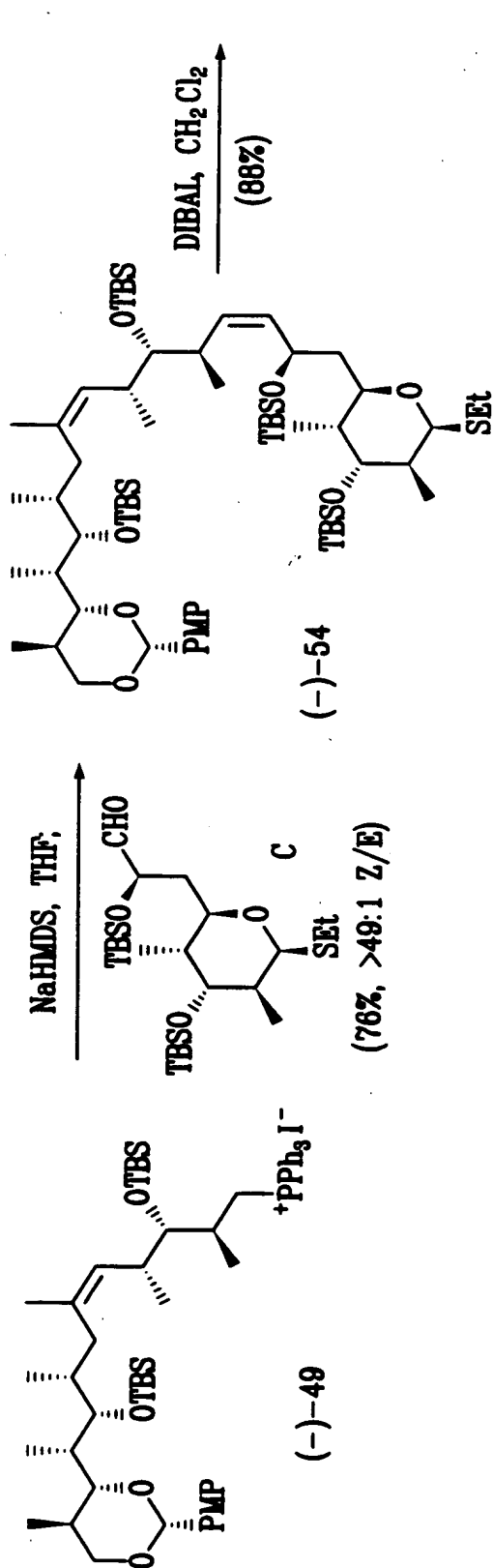


FIG. 15

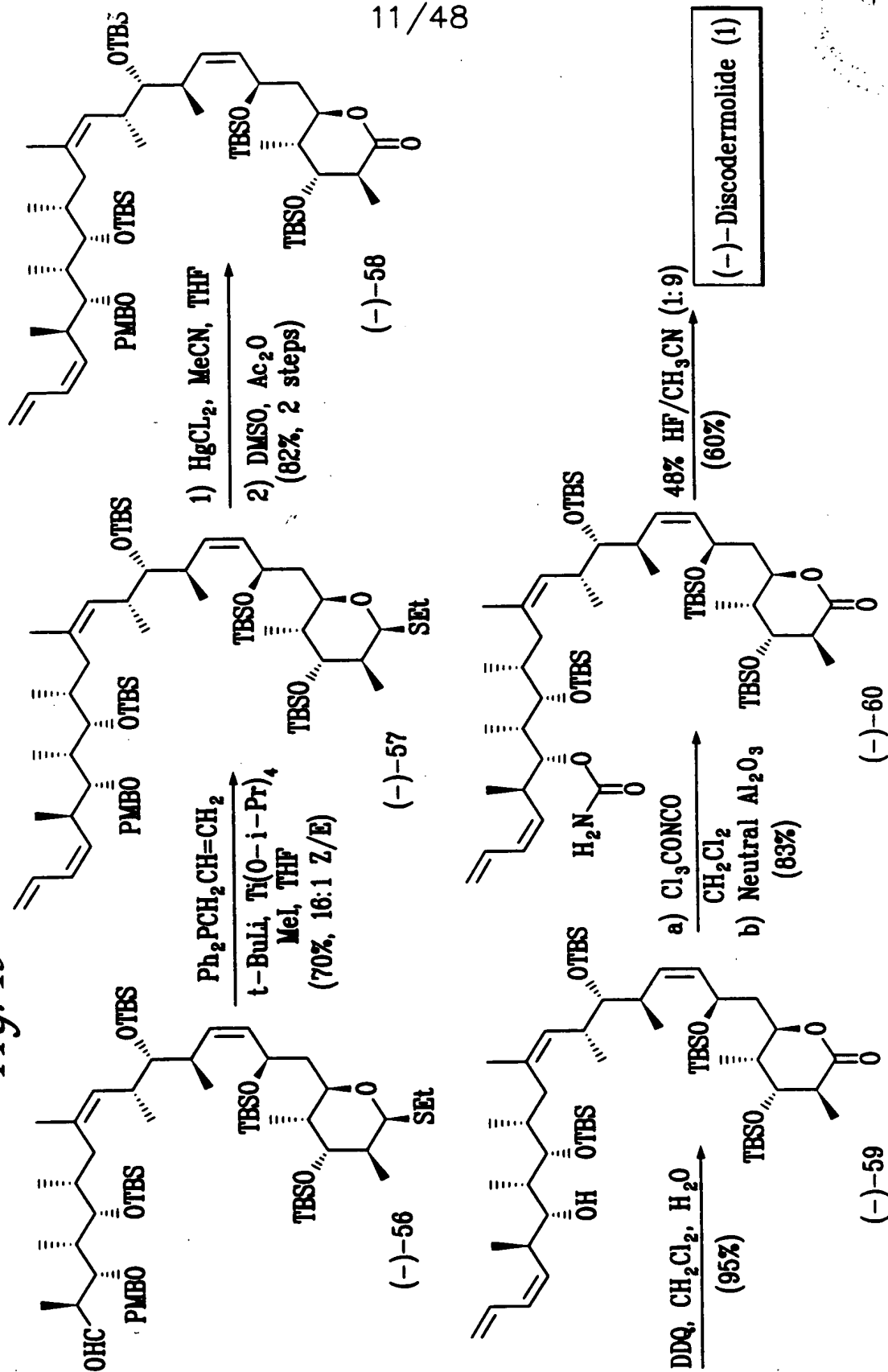
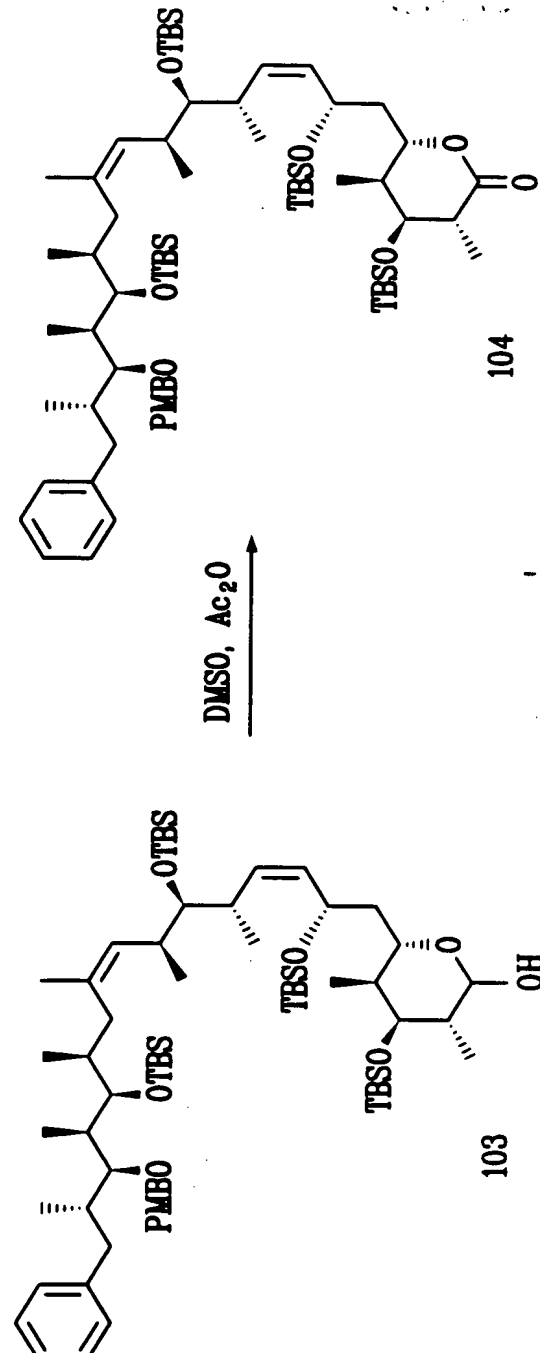


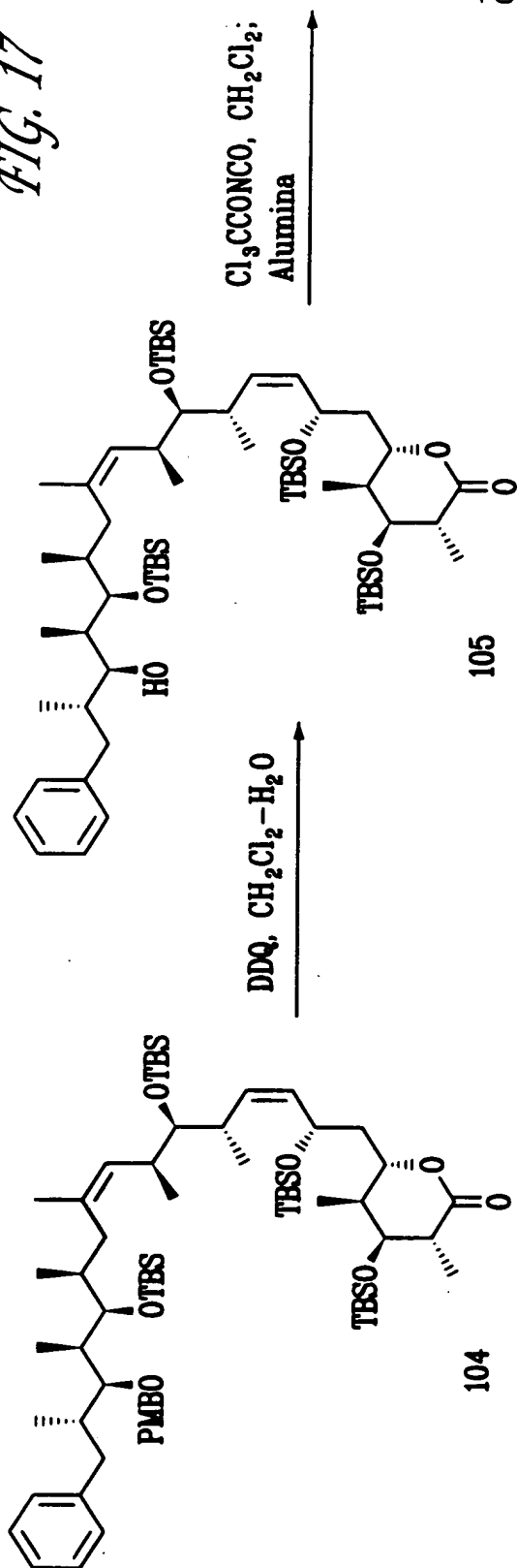
FIG. 16



200210 22602460

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549
	292

FIG. 17



13/48

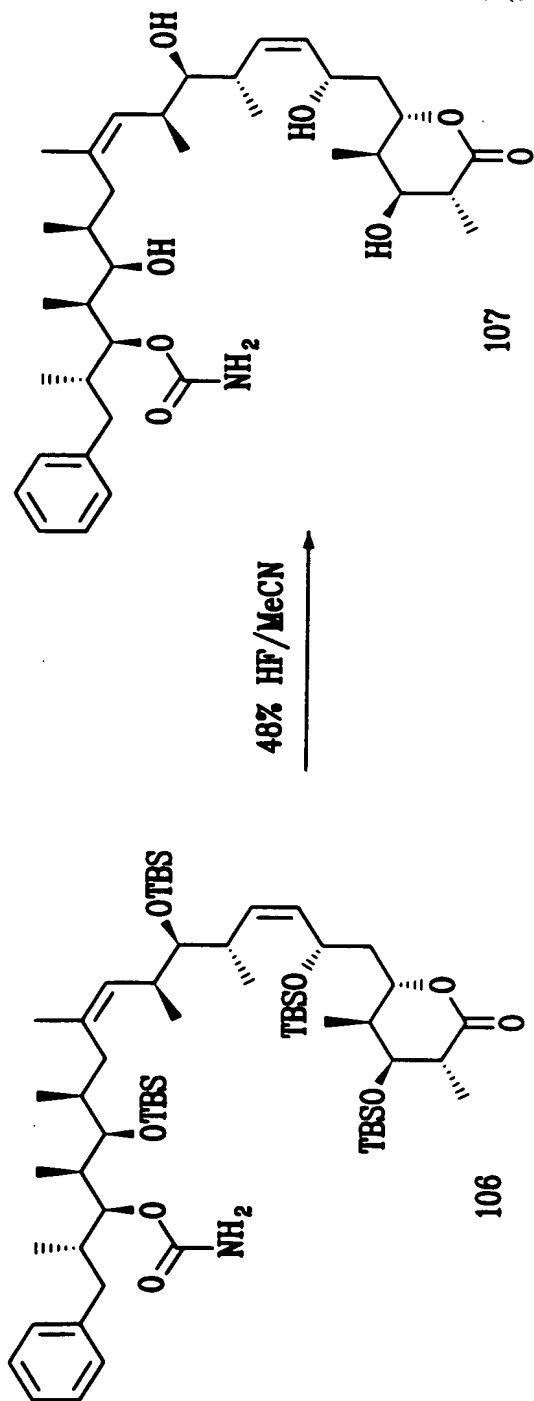
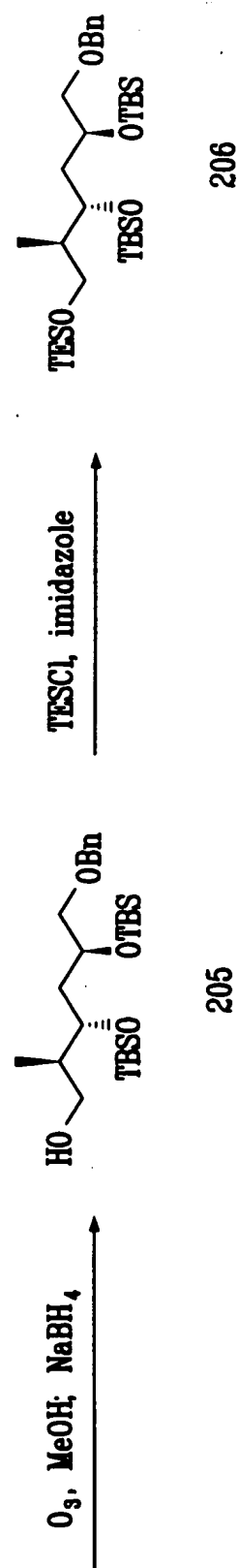
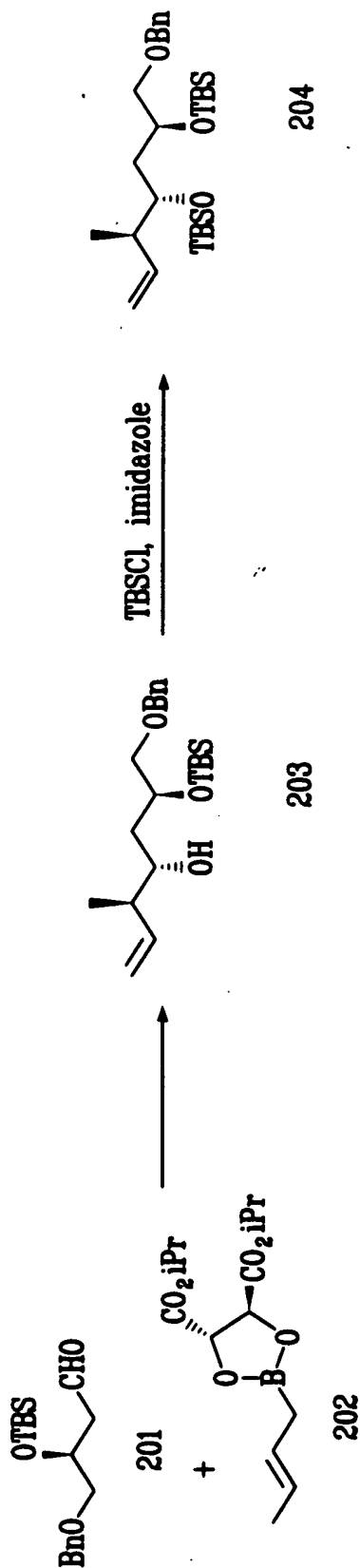
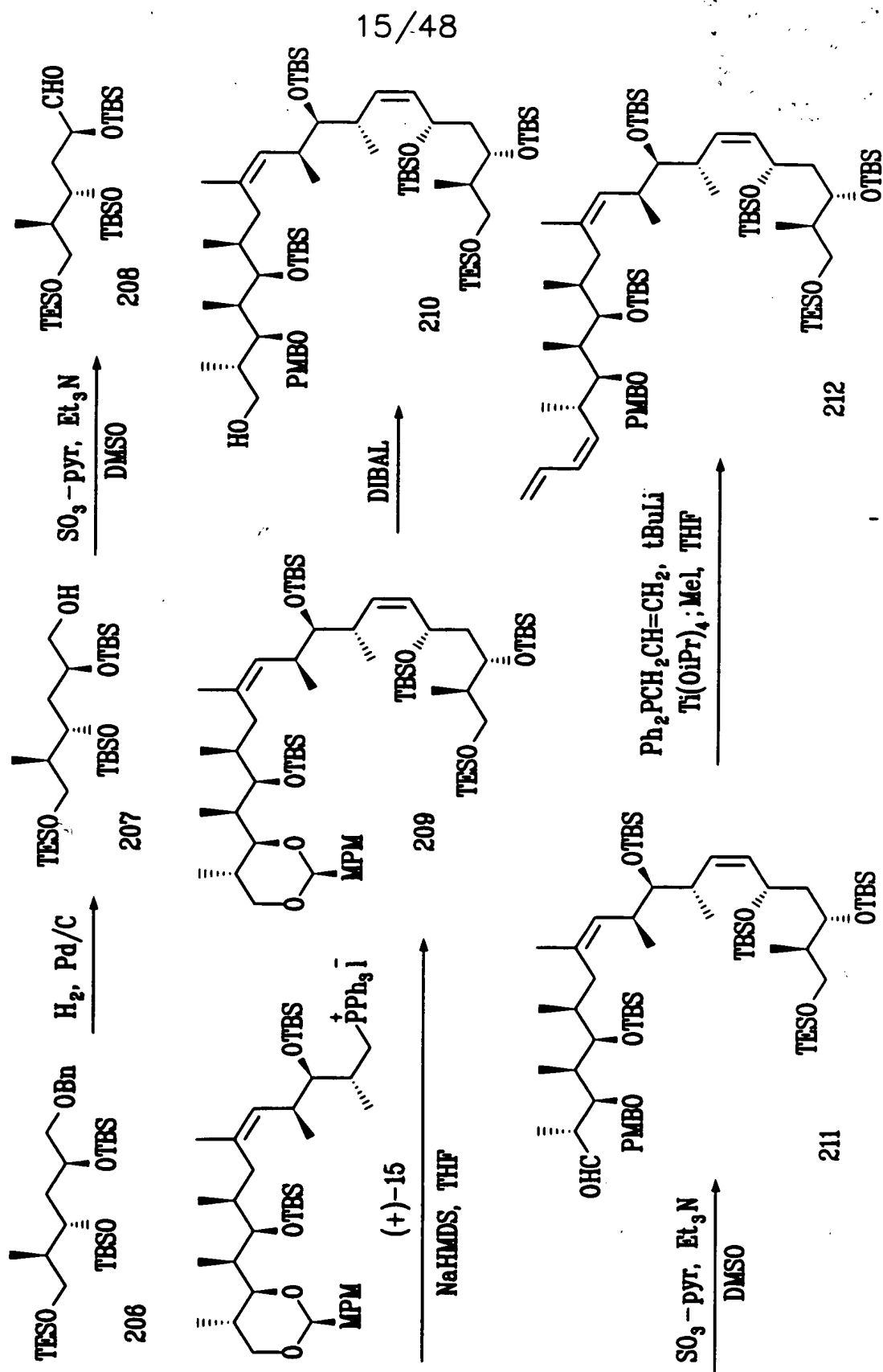


FIG. 18



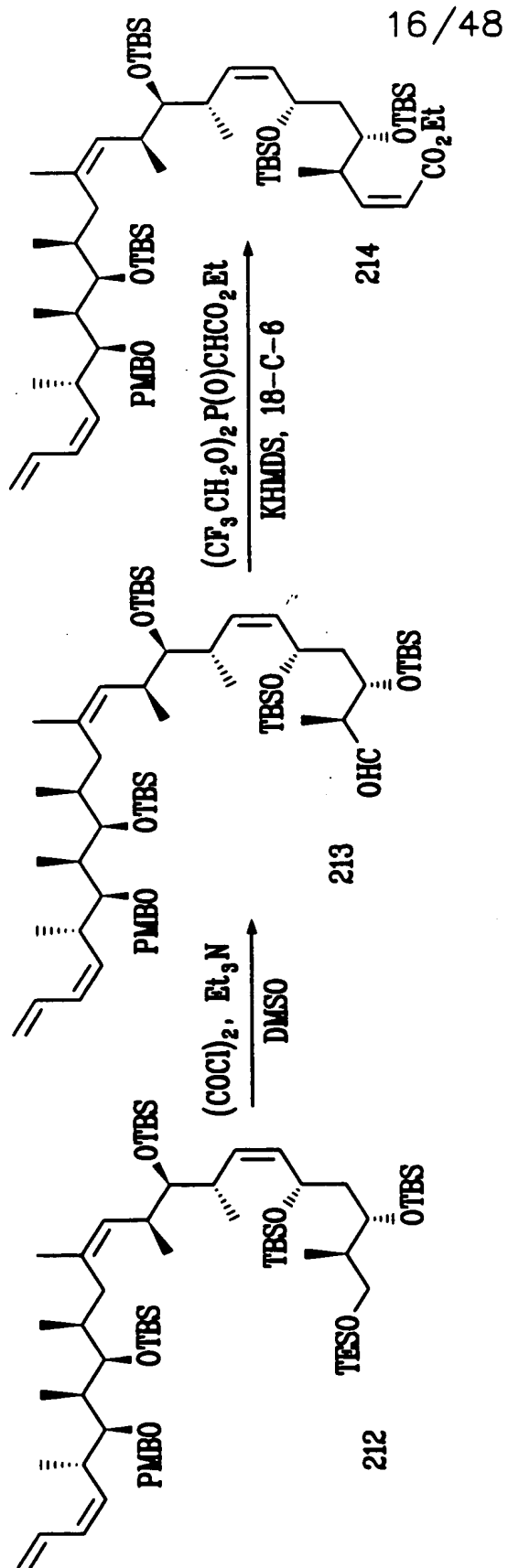
000000 000000 000000

FIG. 19



202210 6260260

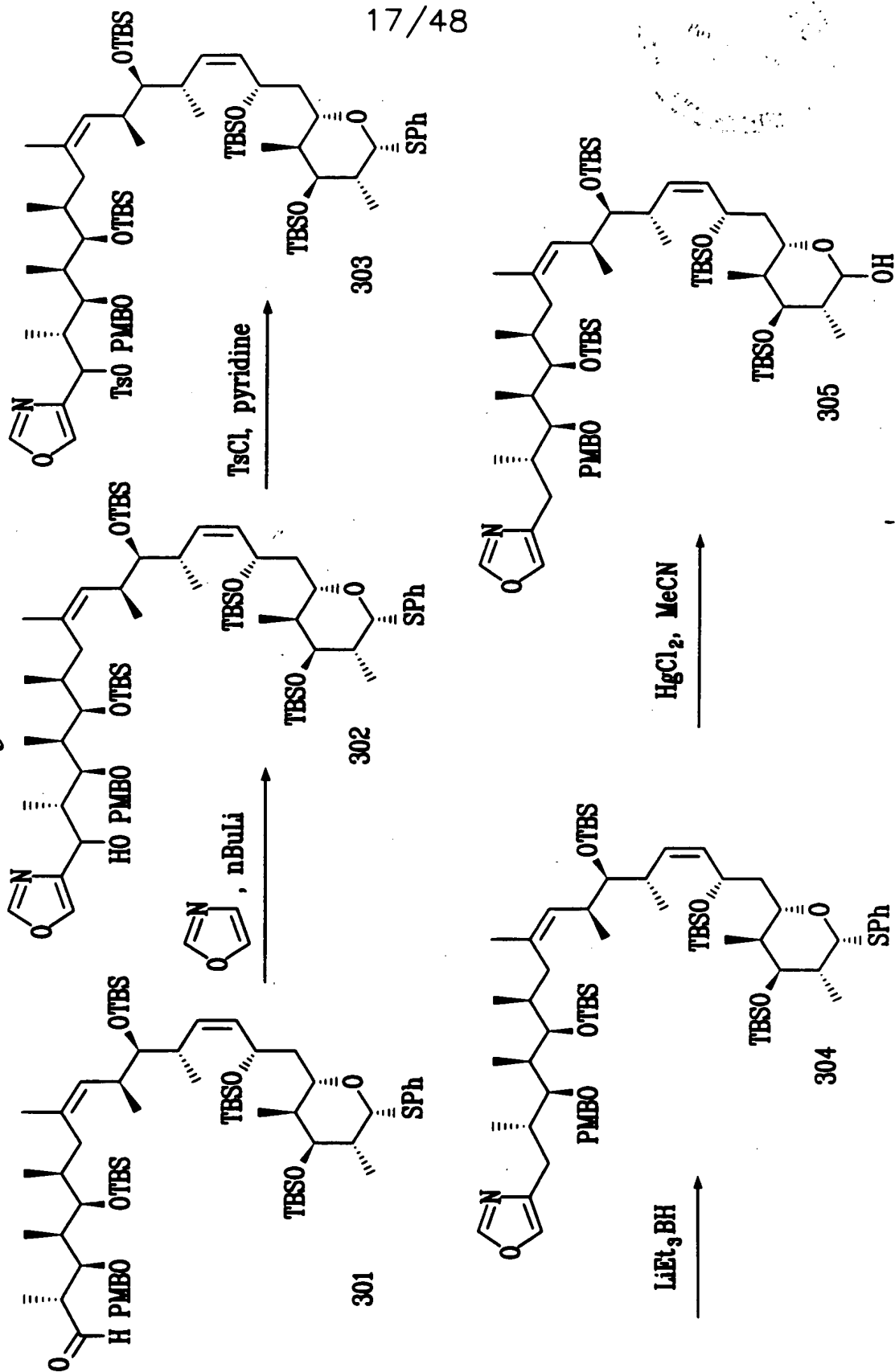
FIG. 20

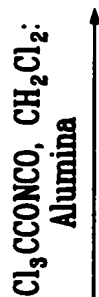




202210-62622-60

FIG. 21

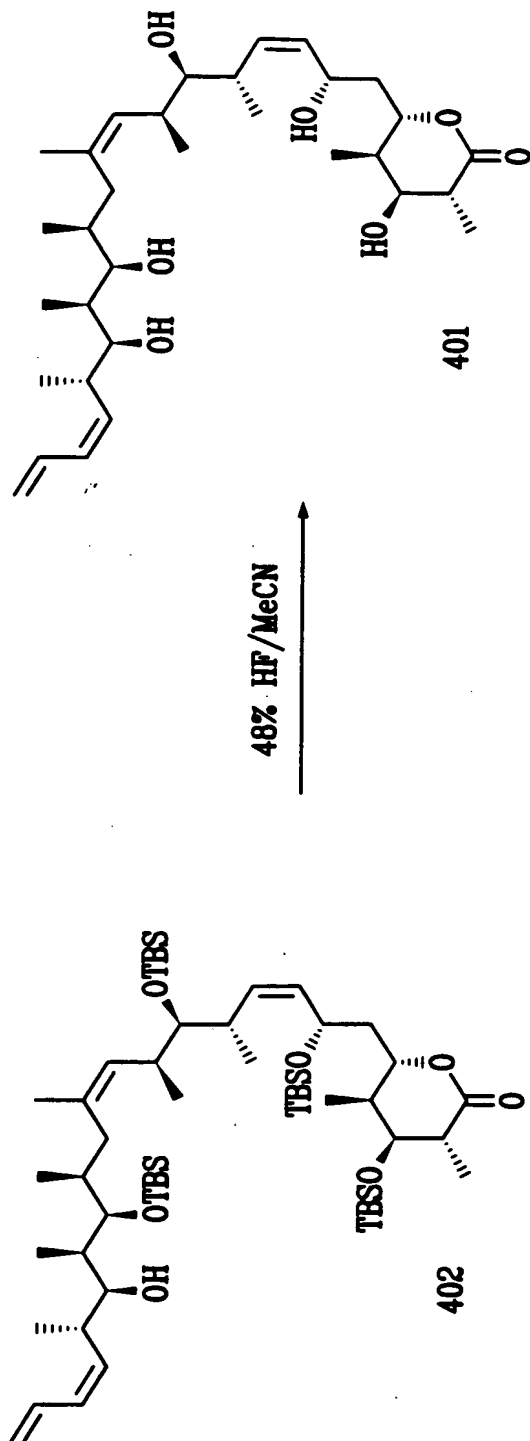




APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549
	292

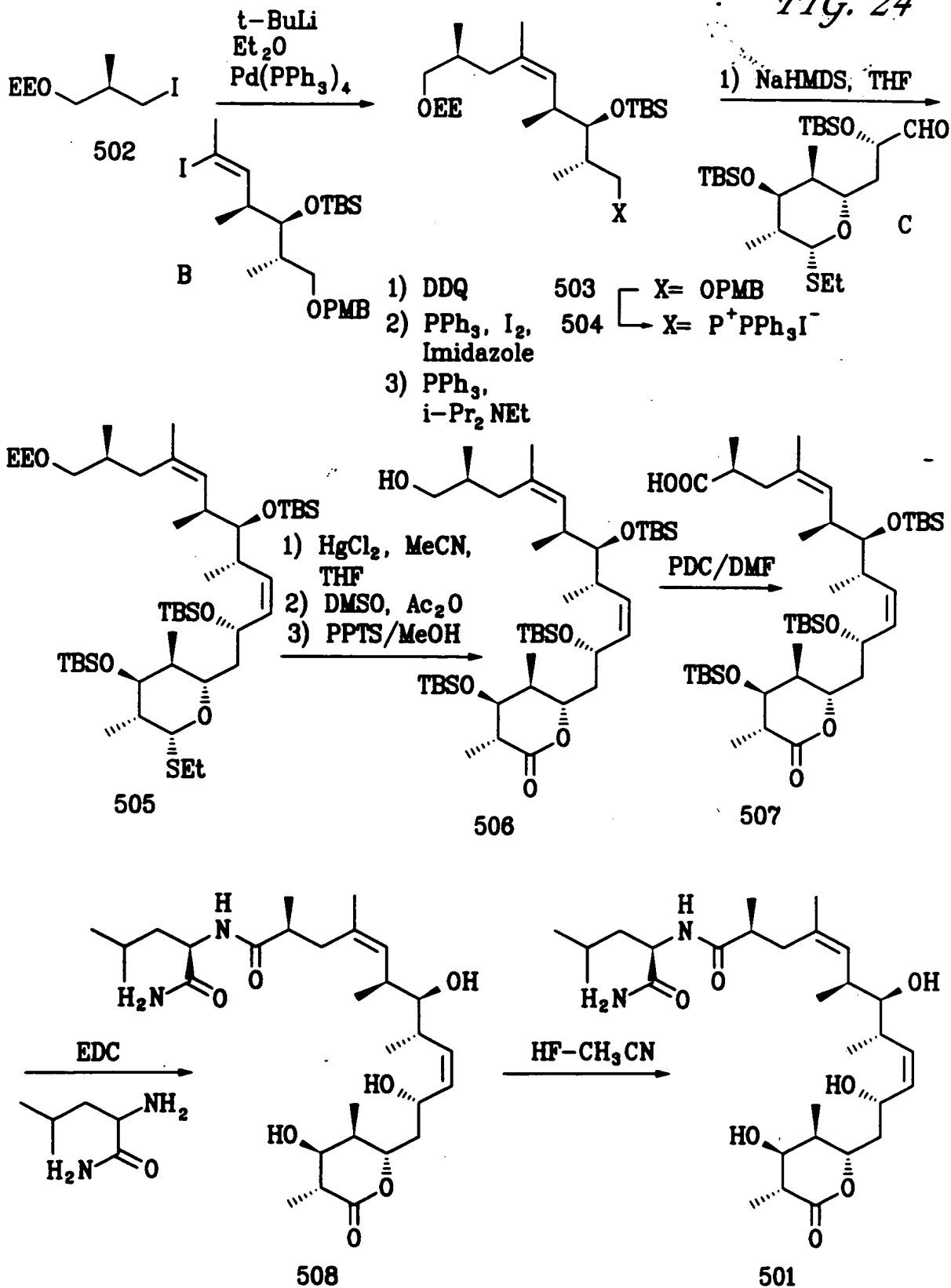
19/48

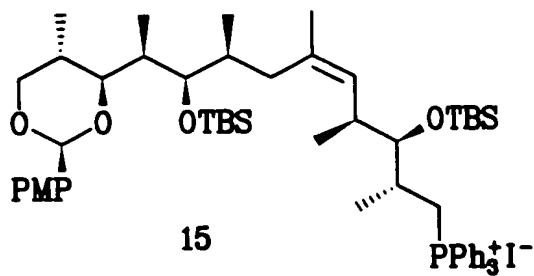
FIG. 23



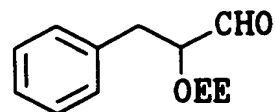
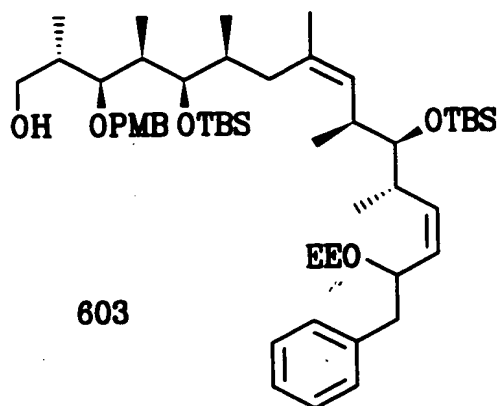
[illegible]

FIG. 24

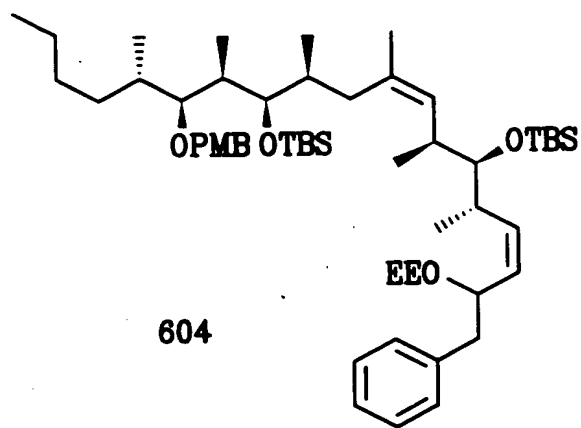




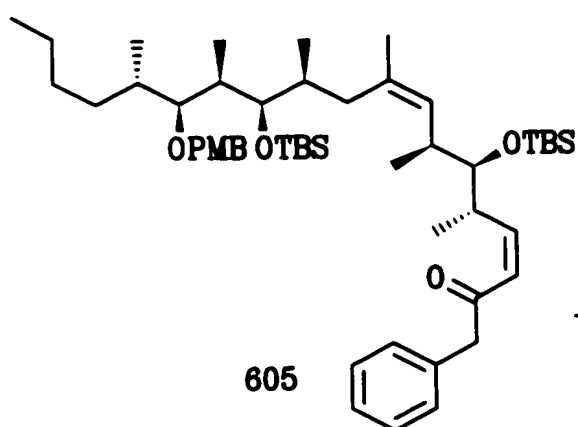
1) NaHMDS, THF

2) DIBAL, CH<sub>2</sub>Cl<sub>2</sub>

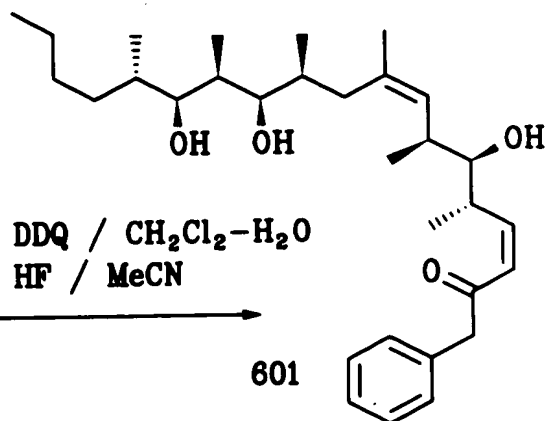
1) TsCl, Pyr.

2) Pr<sub>2</sub>CuLi / Et Q

1) PPTS/MeOH

2) MnO<sub>2</sub>, PhH1) DDQ / CH<sub>2</sub>Cl<sub>2</sub>-H<sub>2</sub>O

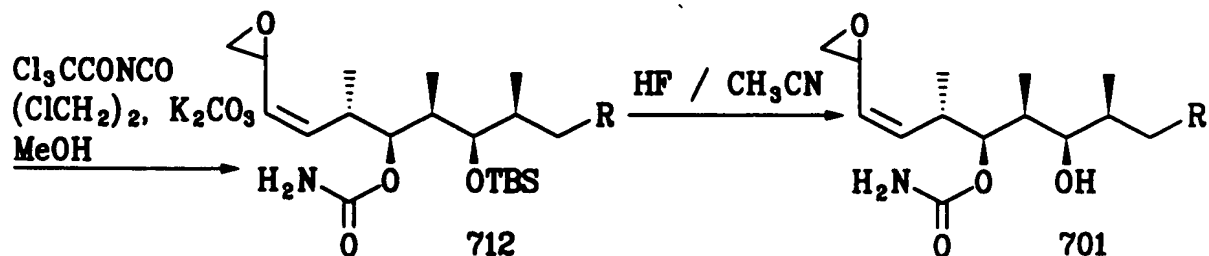
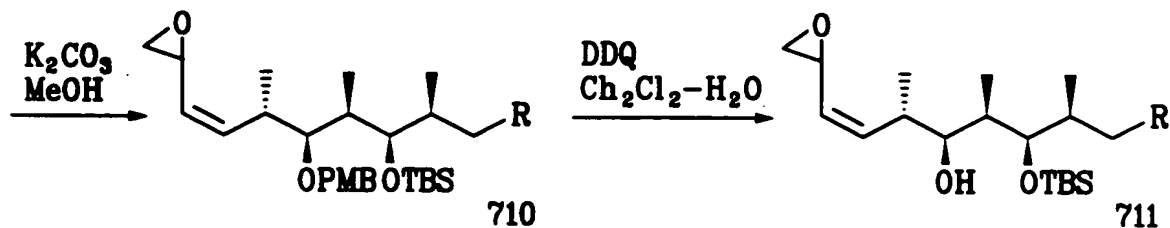
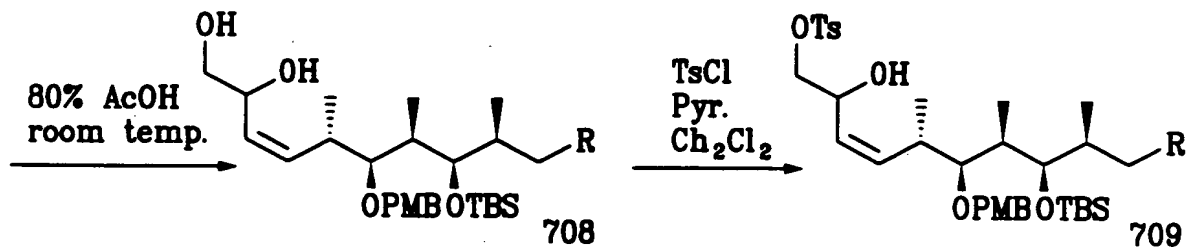
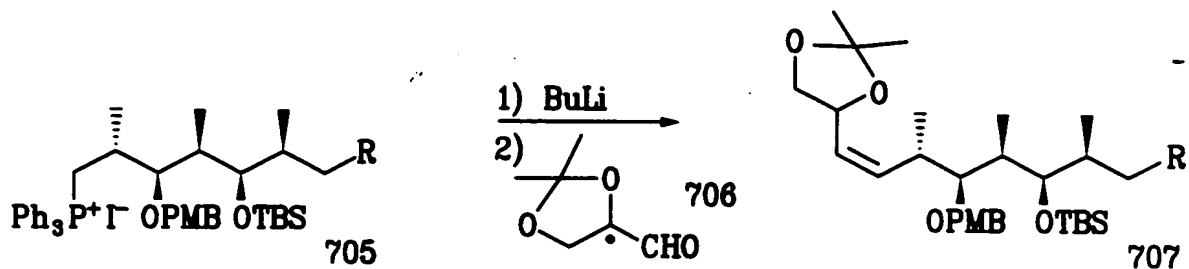
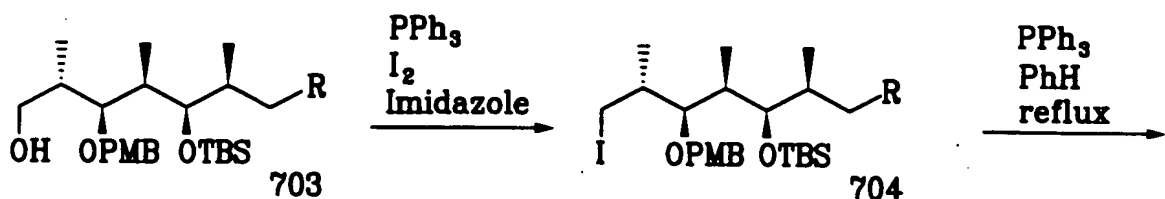
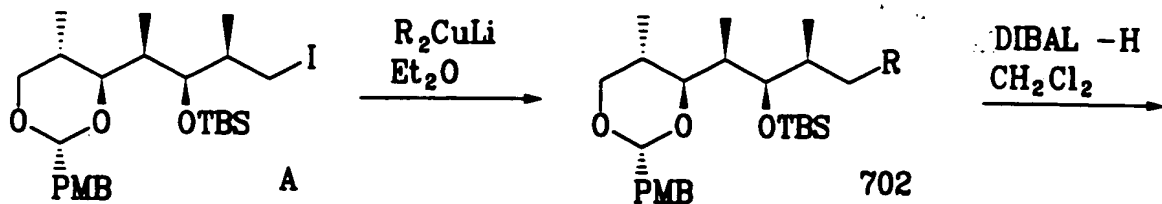
2) HF / MeCN

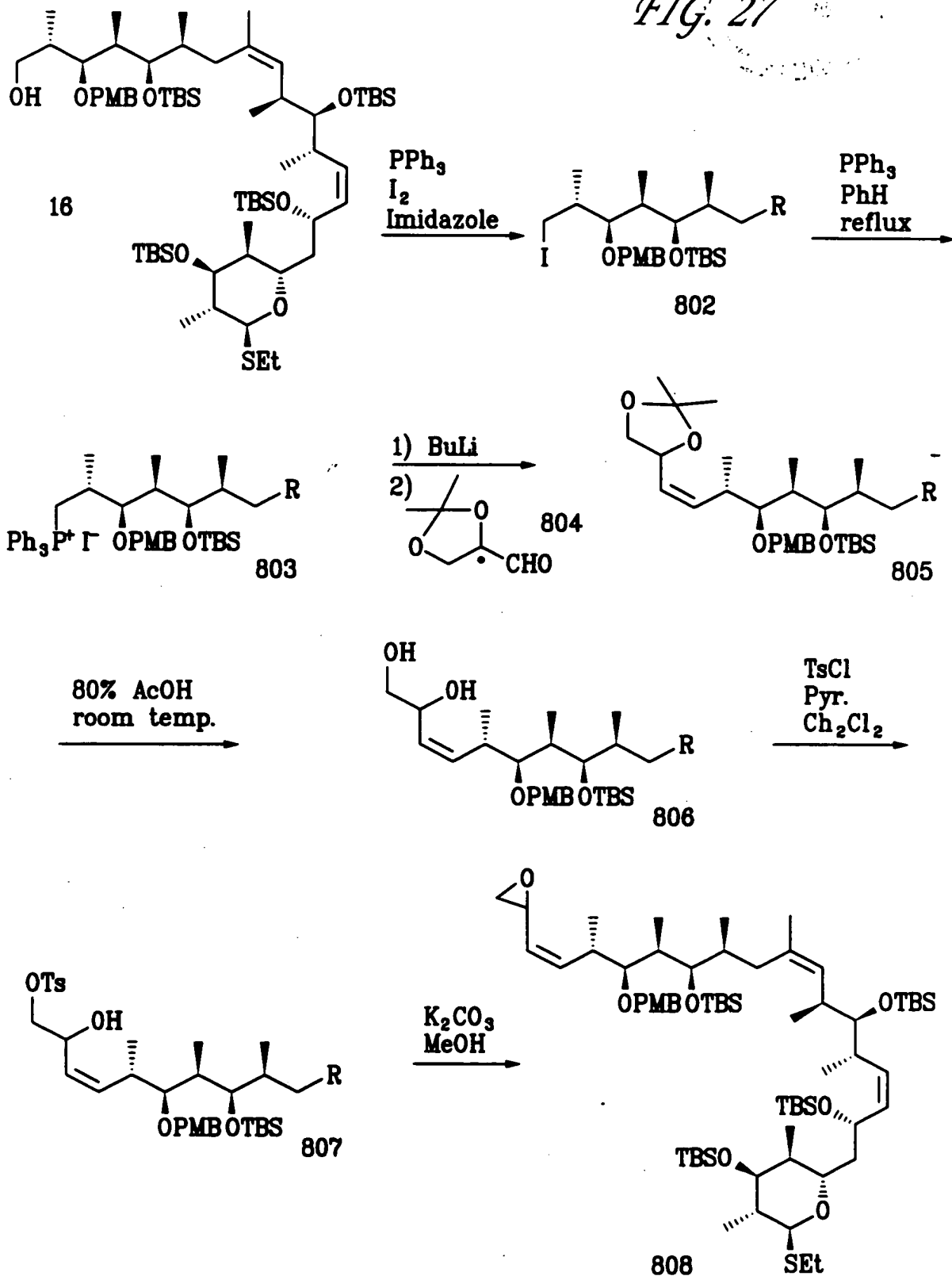


22/48

FIG. 26

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	549	292
DRAFTSMAN		

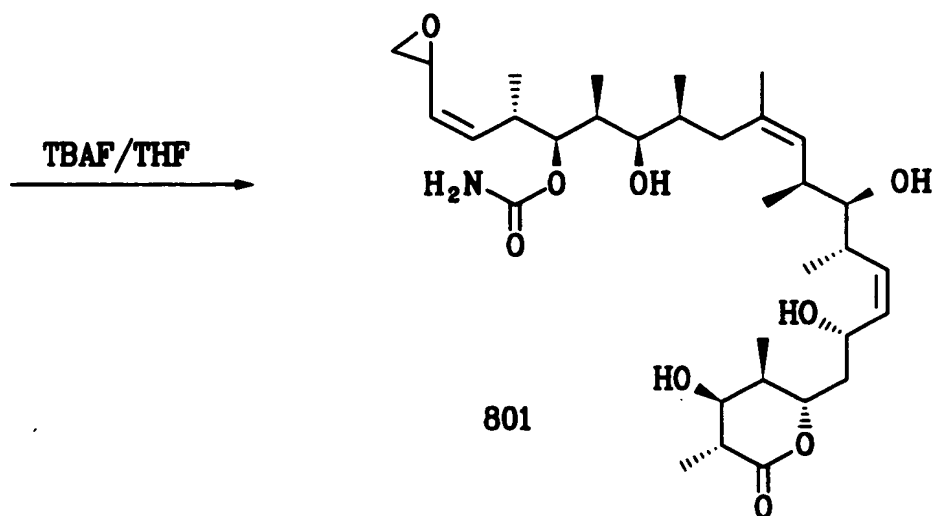
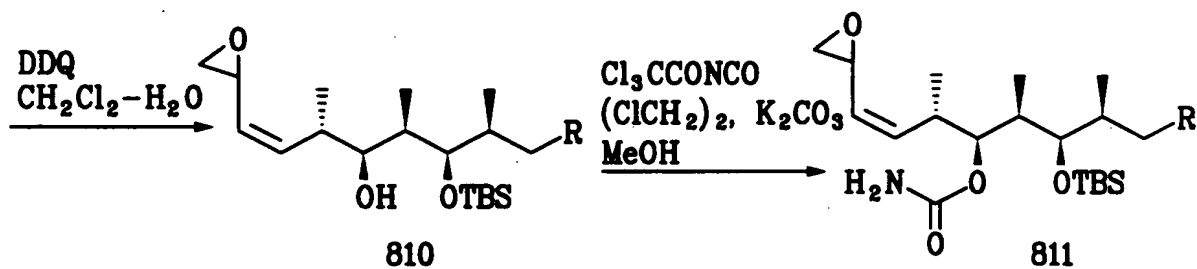
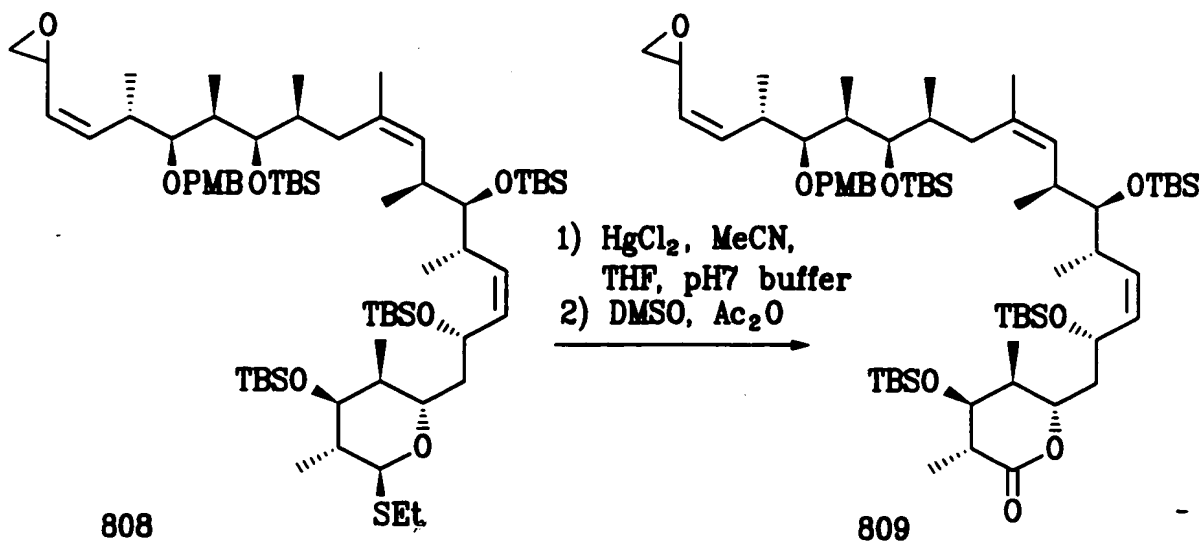


[illegible]

O.G. FIG.		SUBCLASS
APPROVED	BY	599
DRAFTSMAN		292

24/48

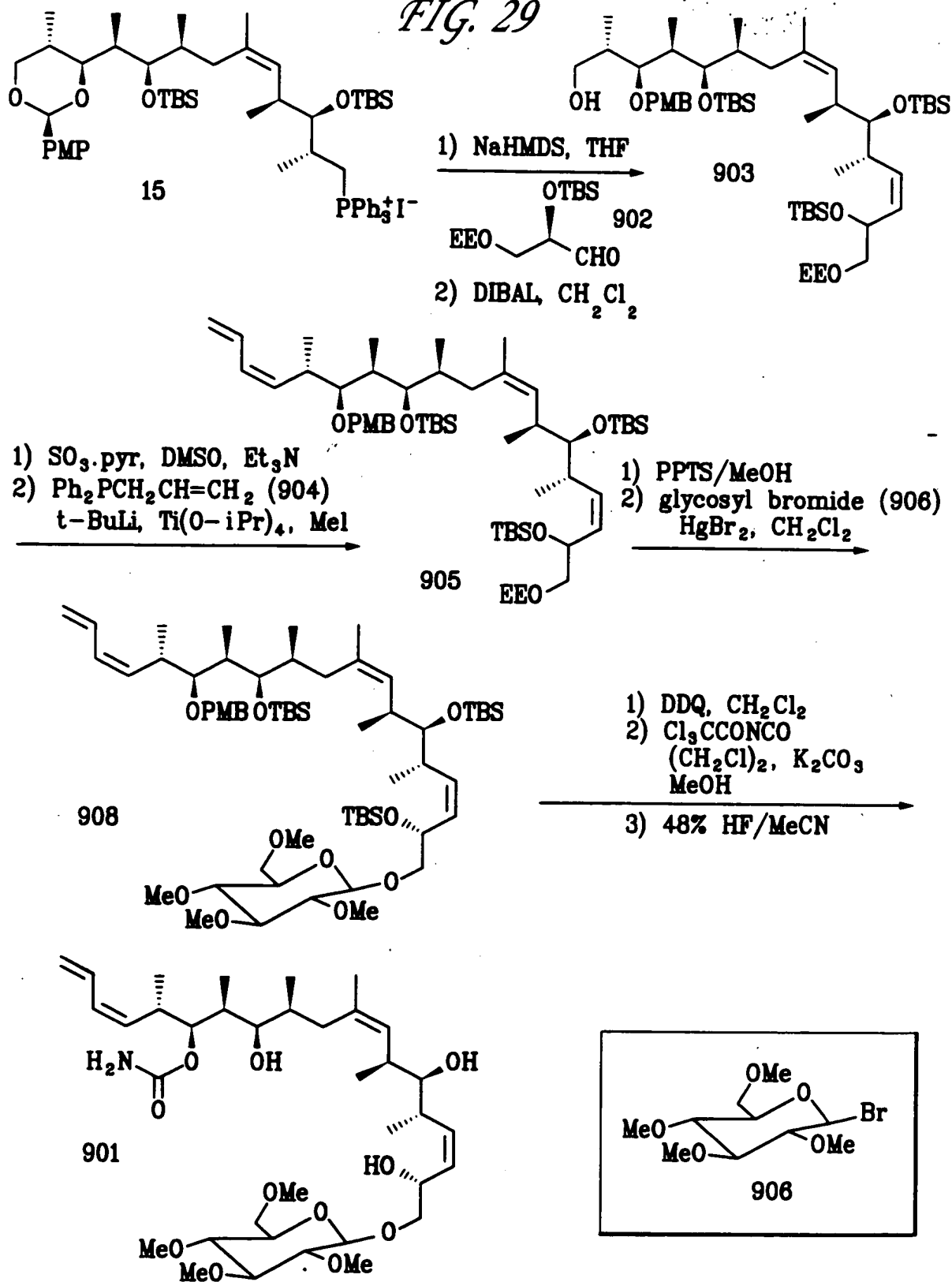
FIG. 28





25/48

FIG. 29



APPROVED	BY	CLASS	SUBCLASS
	DRAFTSMAN	599	292

200210 6002160

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
592	292

FIG. 30

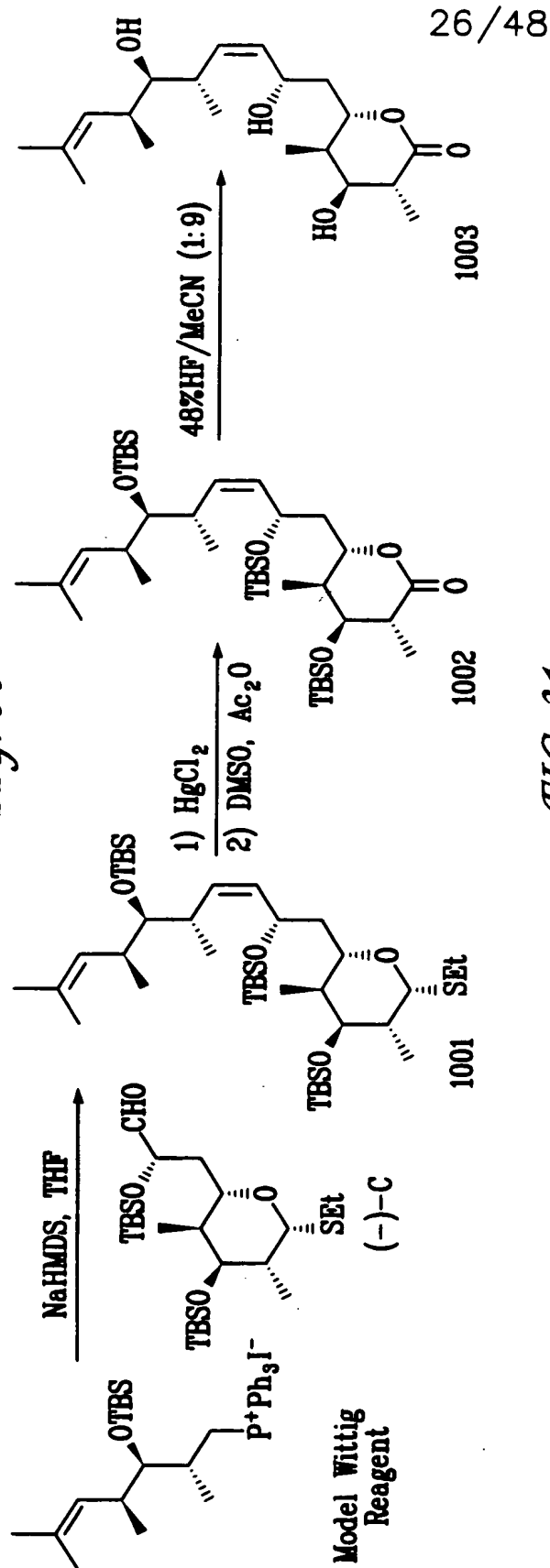
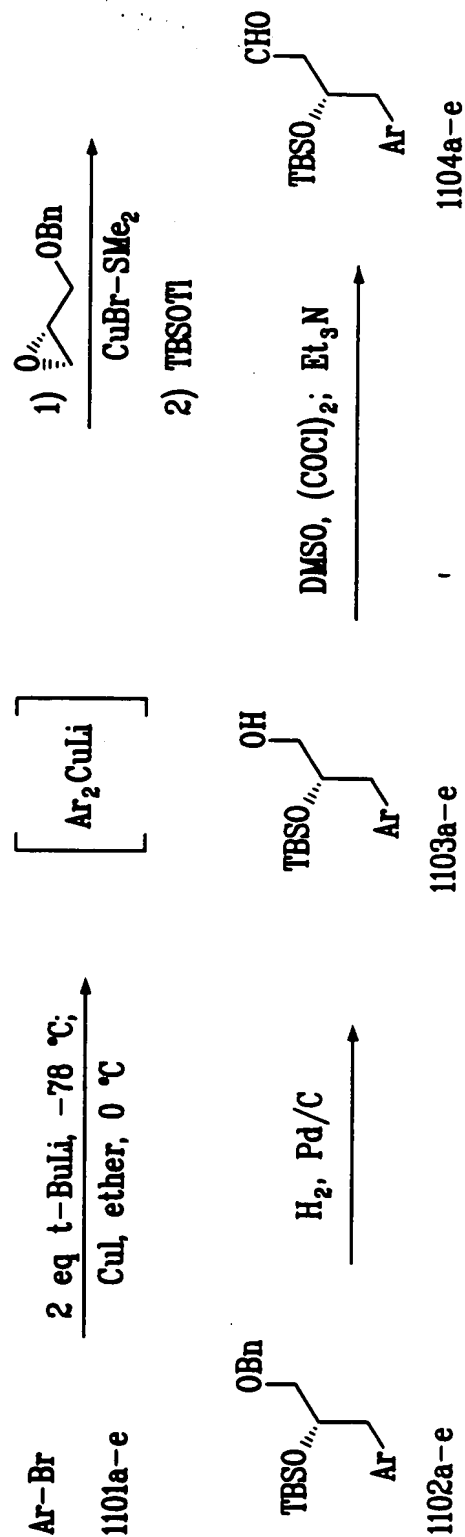
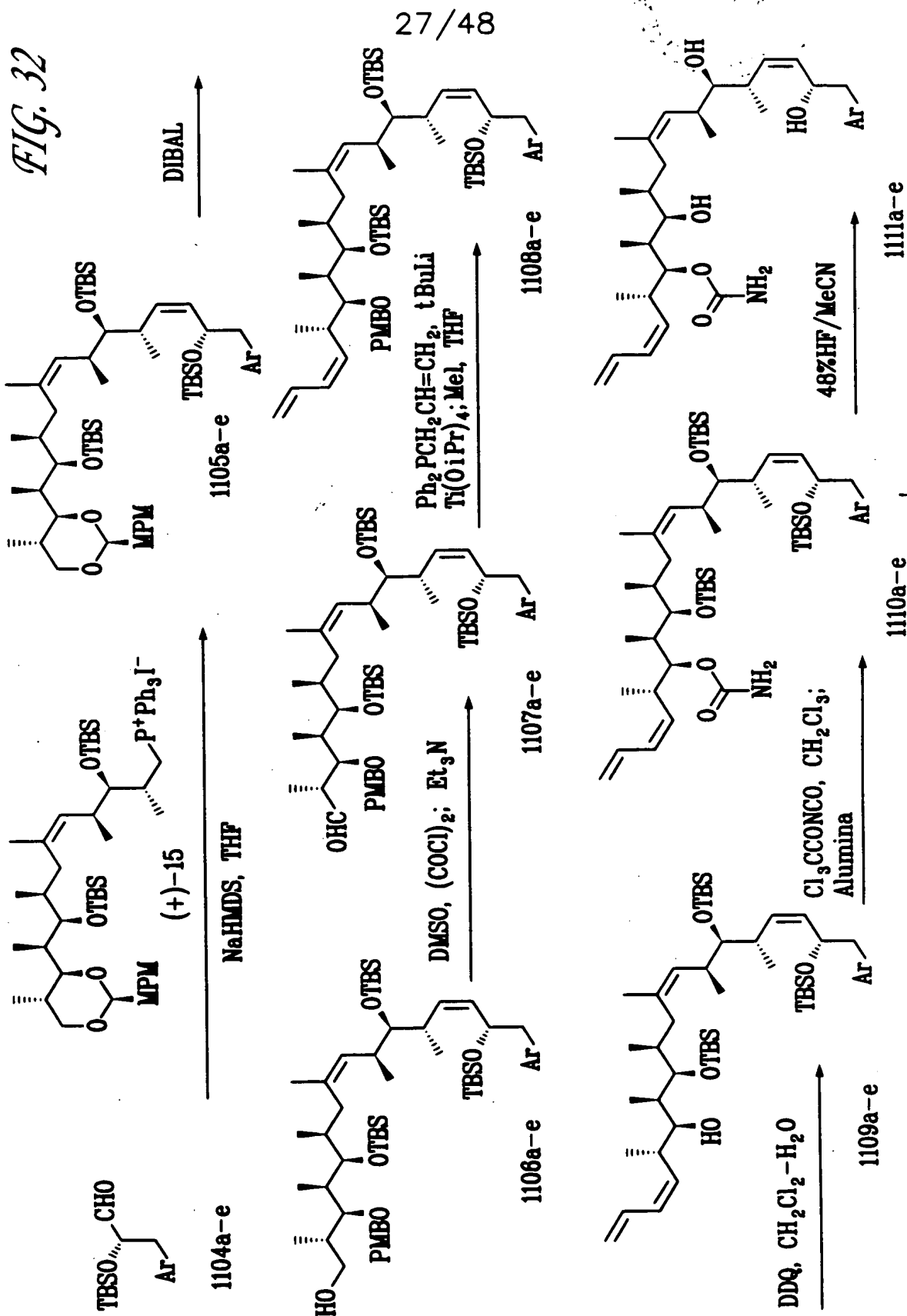


FIG. 31



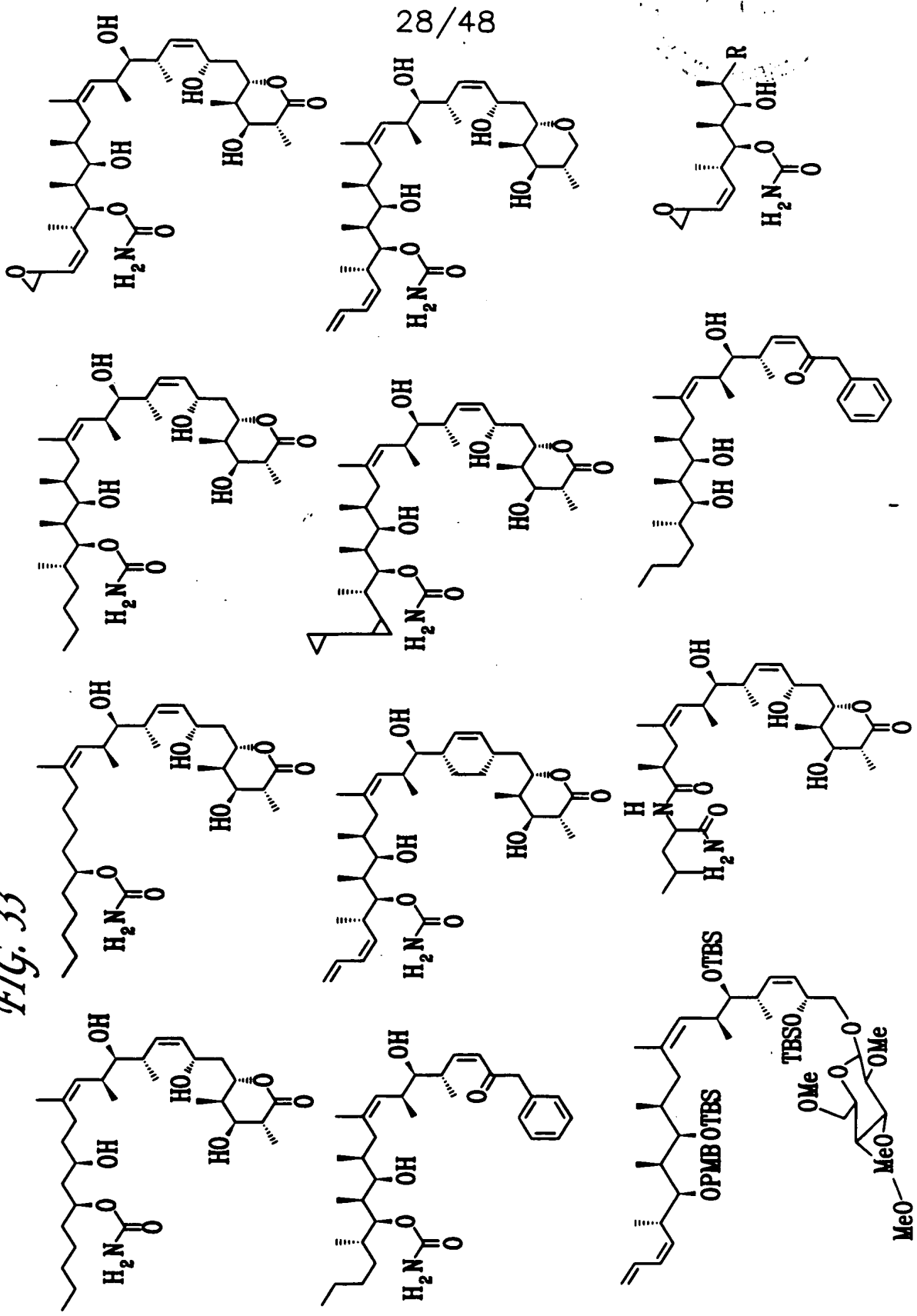
202506060000



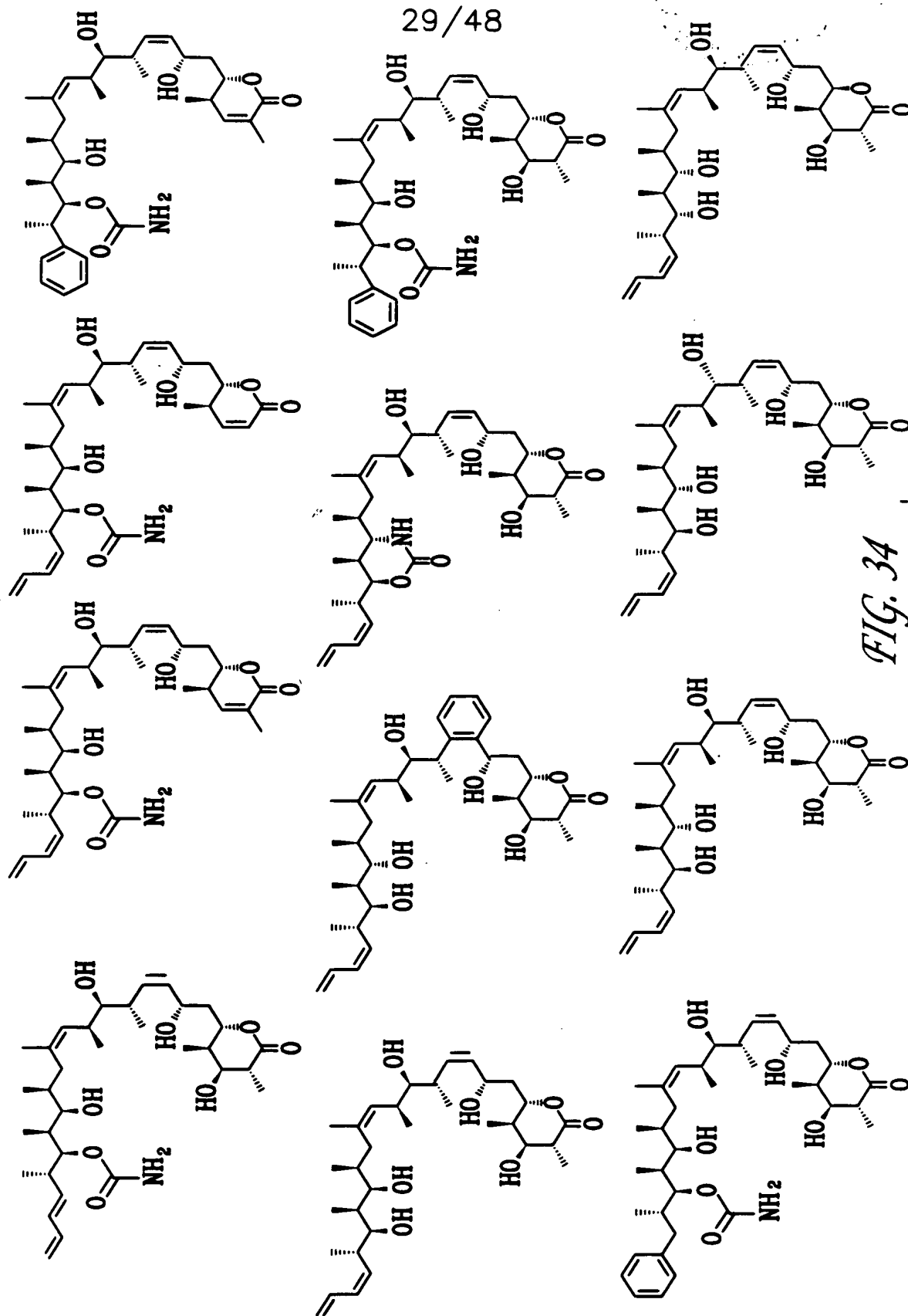
APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549 292

20210706000000

FIG. 33



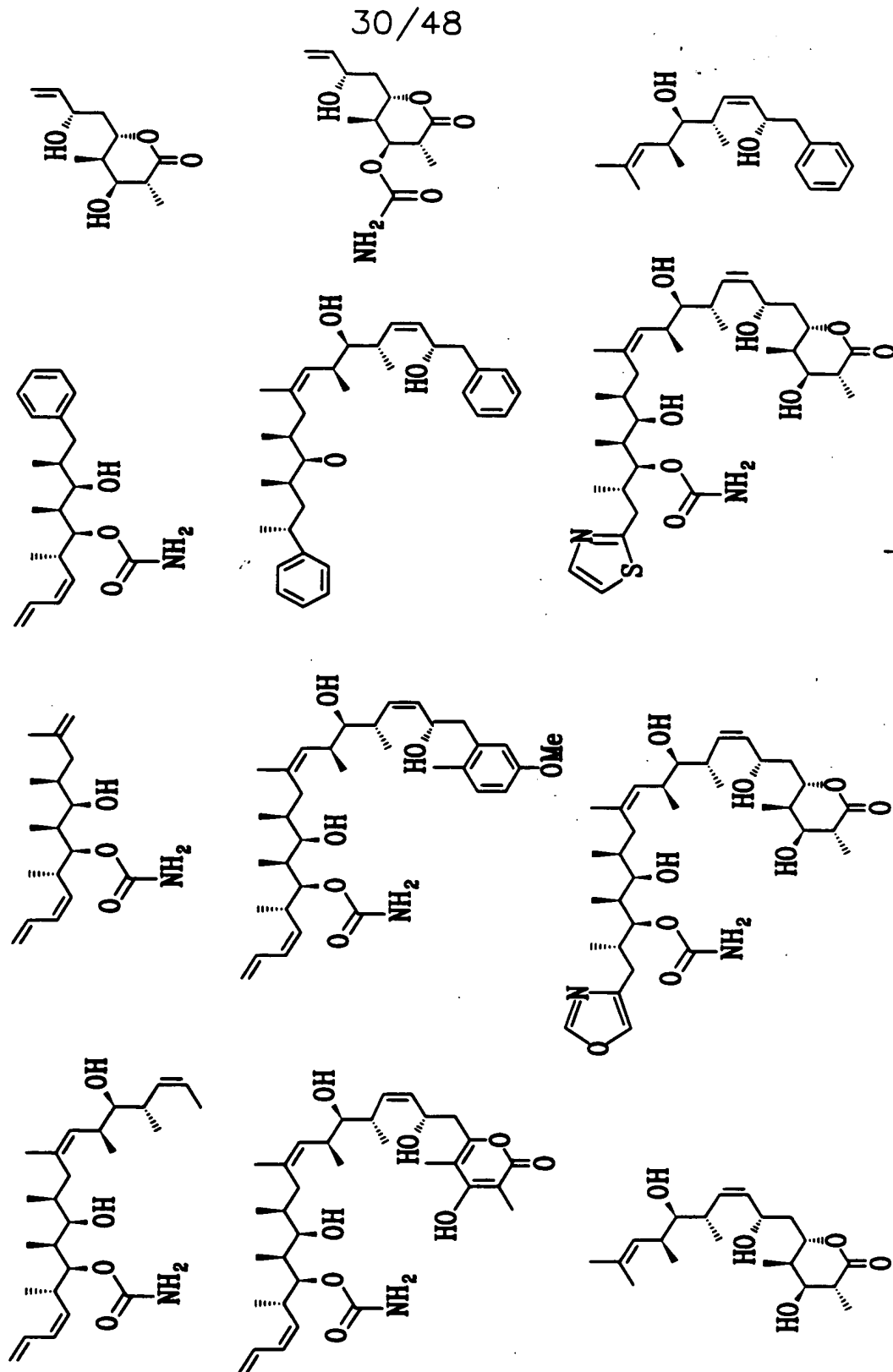
APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	S49
	292



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	549 292

20210 6202468

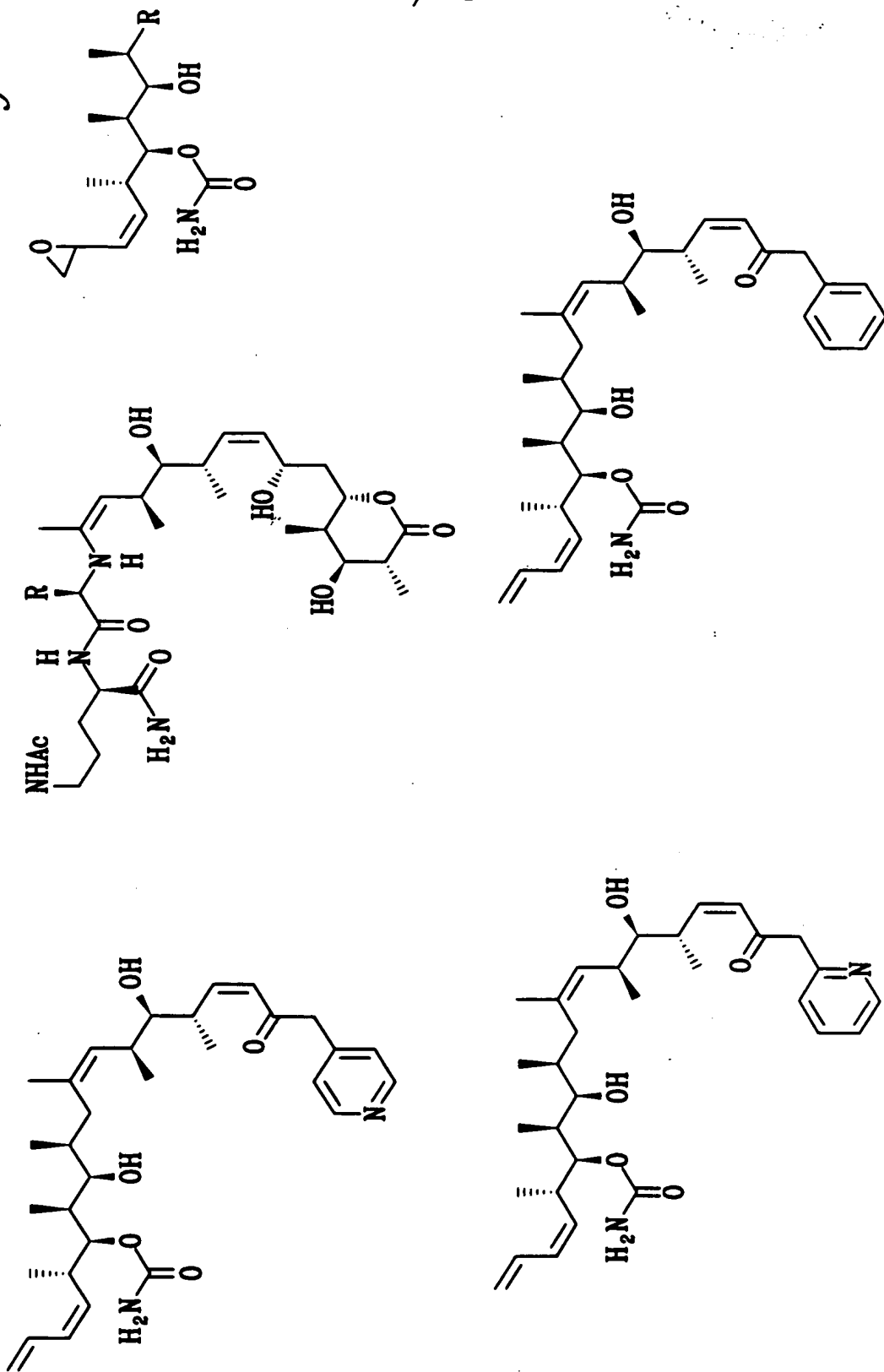
FIG. 35



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN	547	292

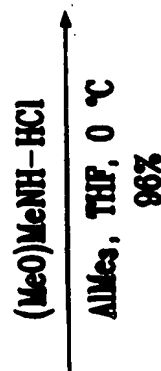
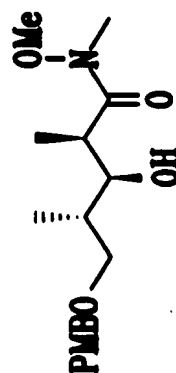
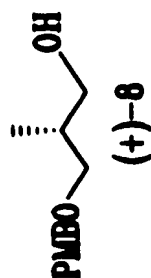
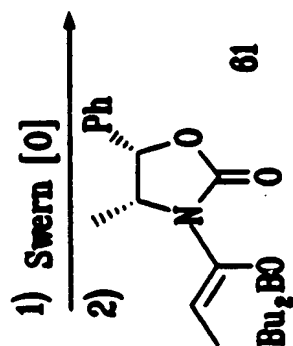
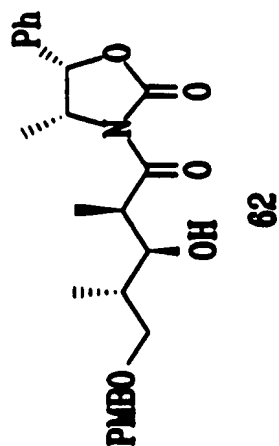
31/48

FIG. 36



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549 192

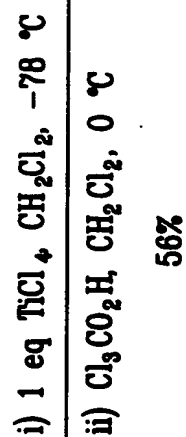
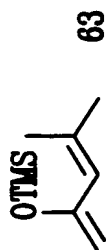
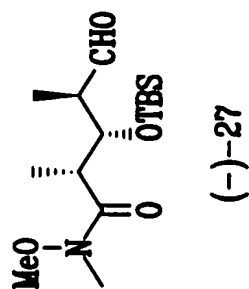
FIG. 37



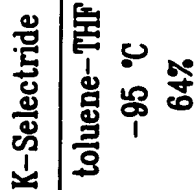
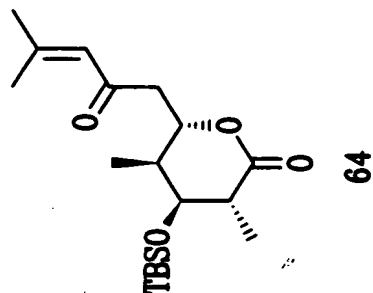


APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549 292

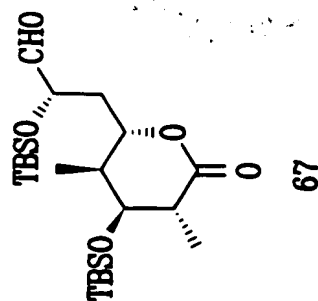
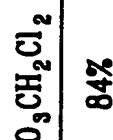
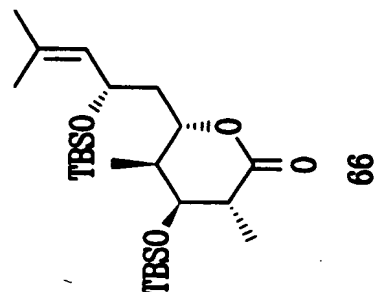
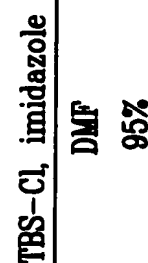
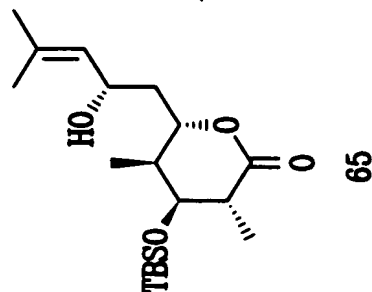
FIG. 38



56%



33/48



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549
	292

FIG. 39

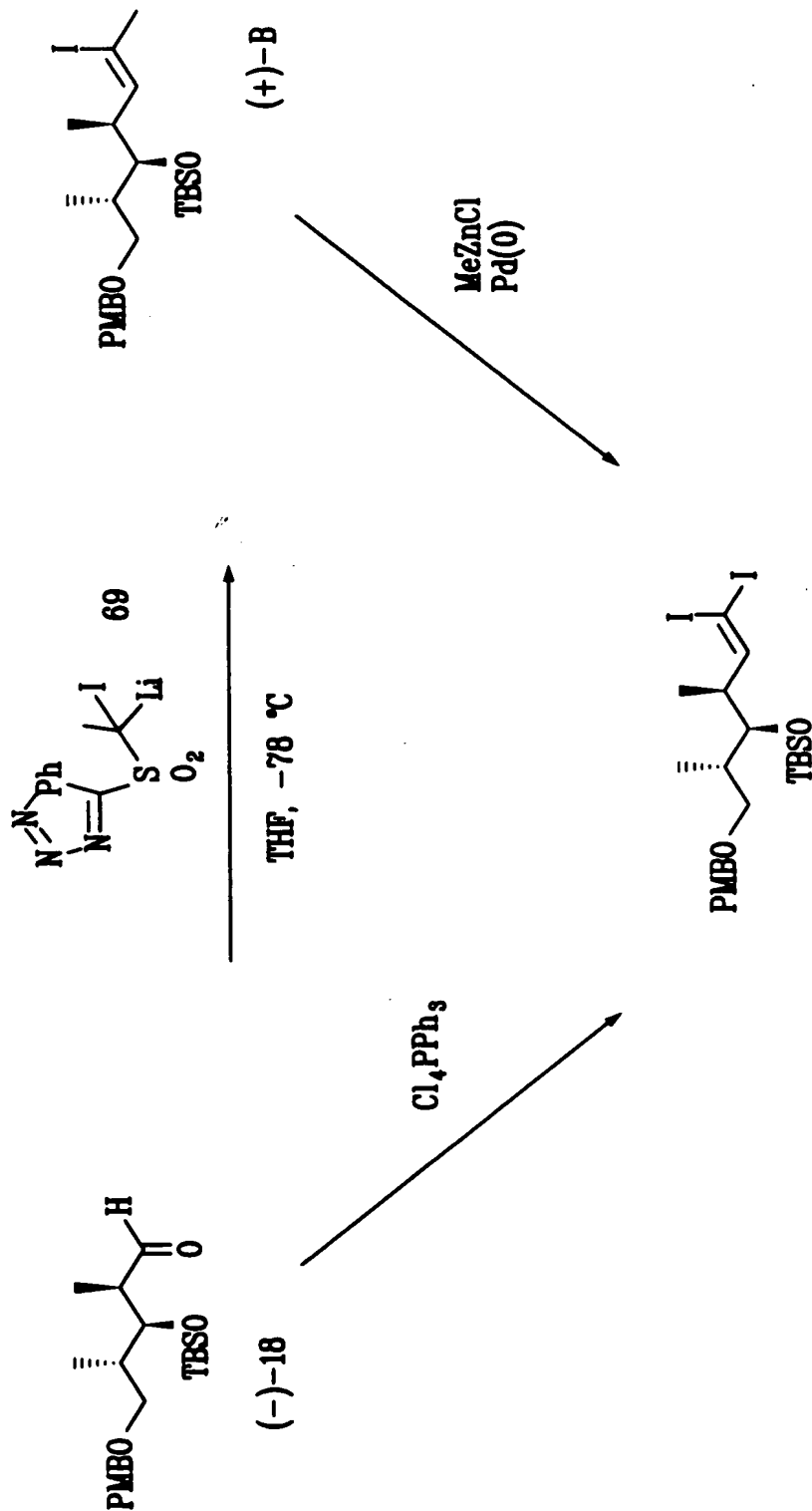
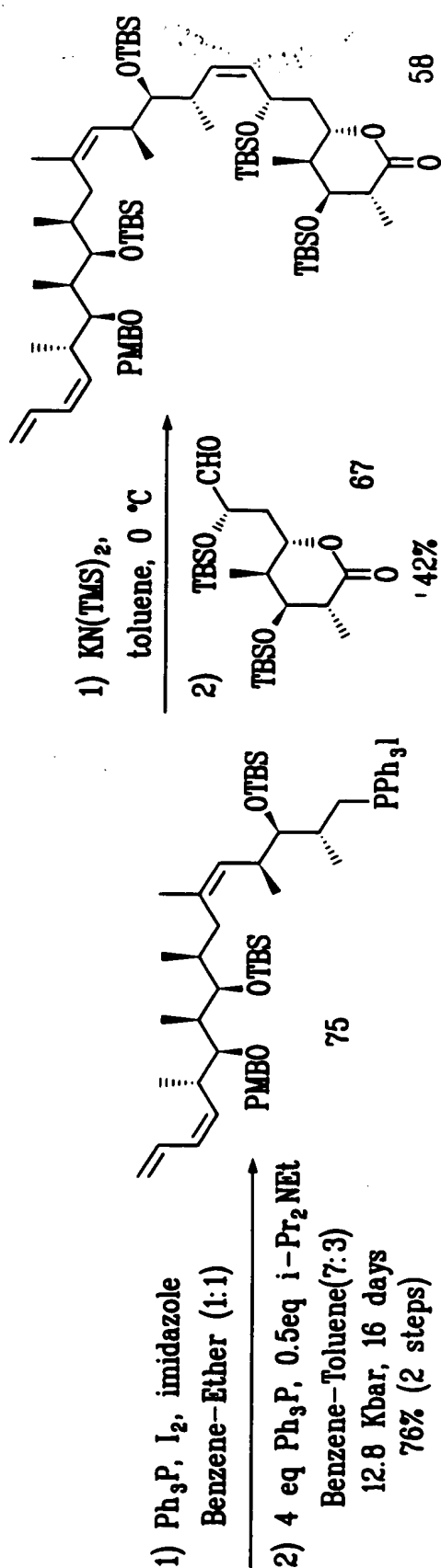
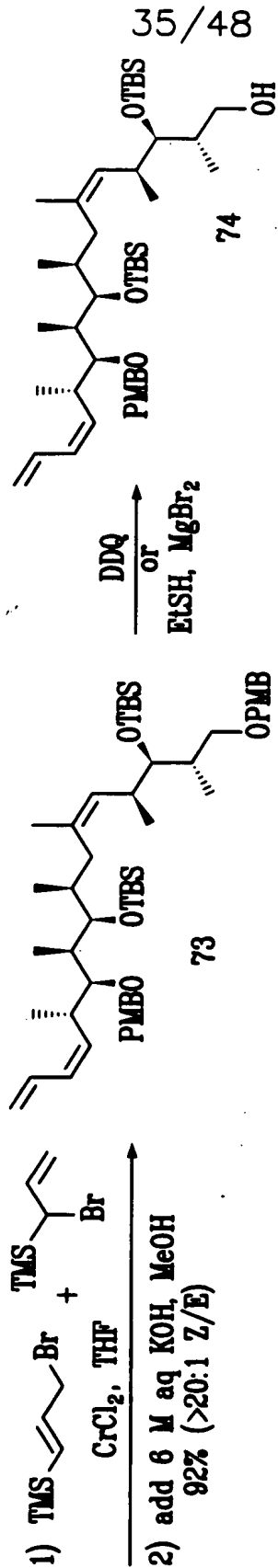
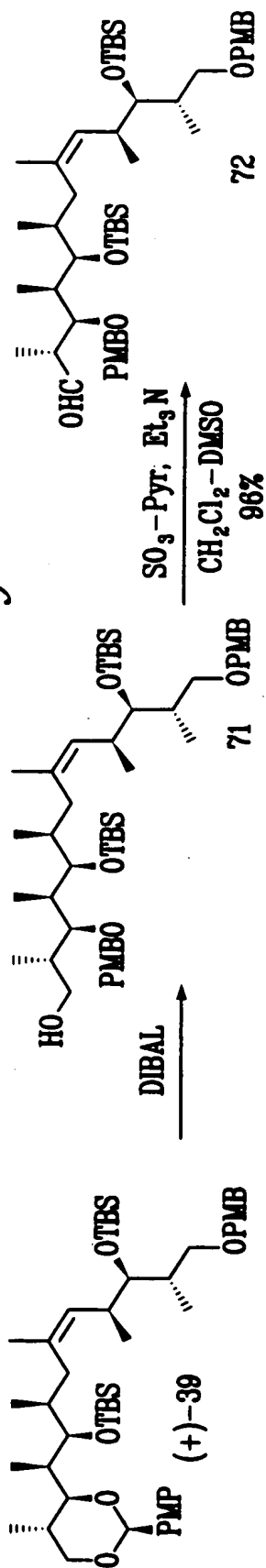


FIG. 40

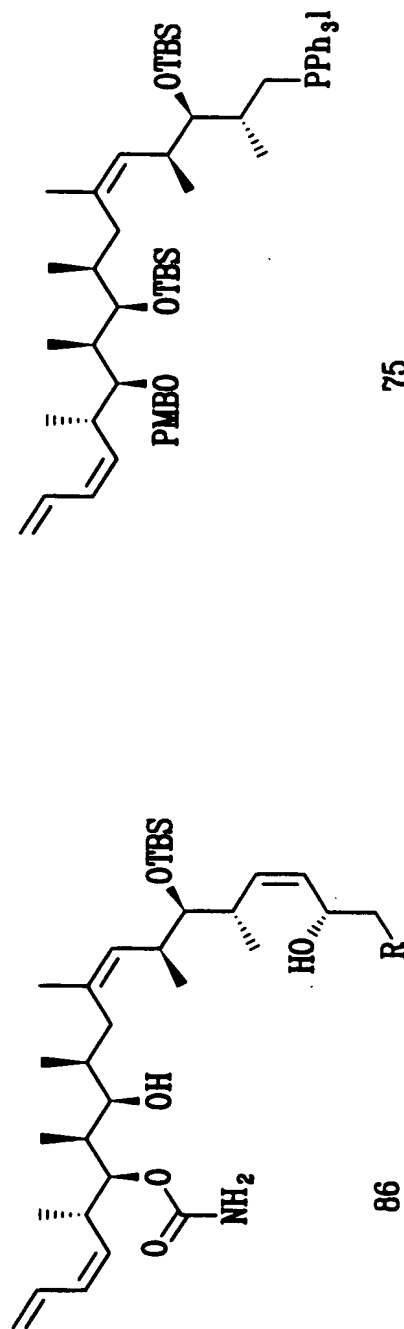
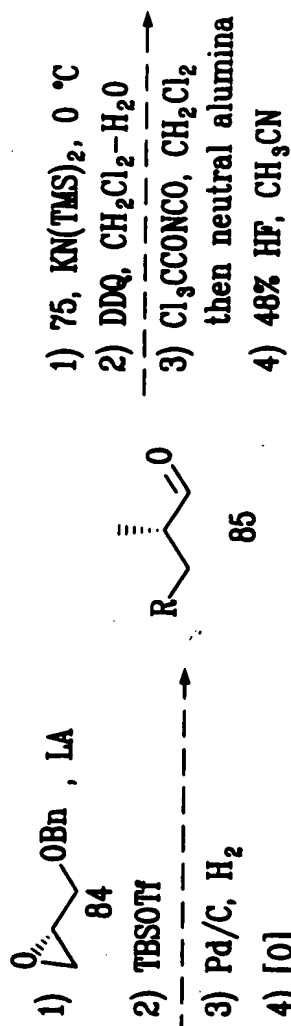
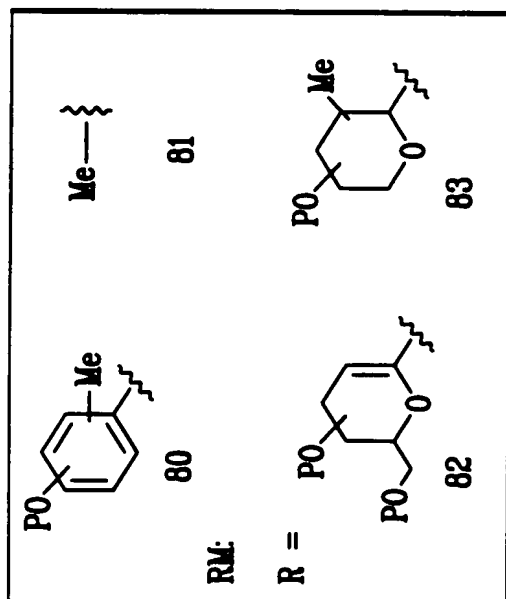


35/48

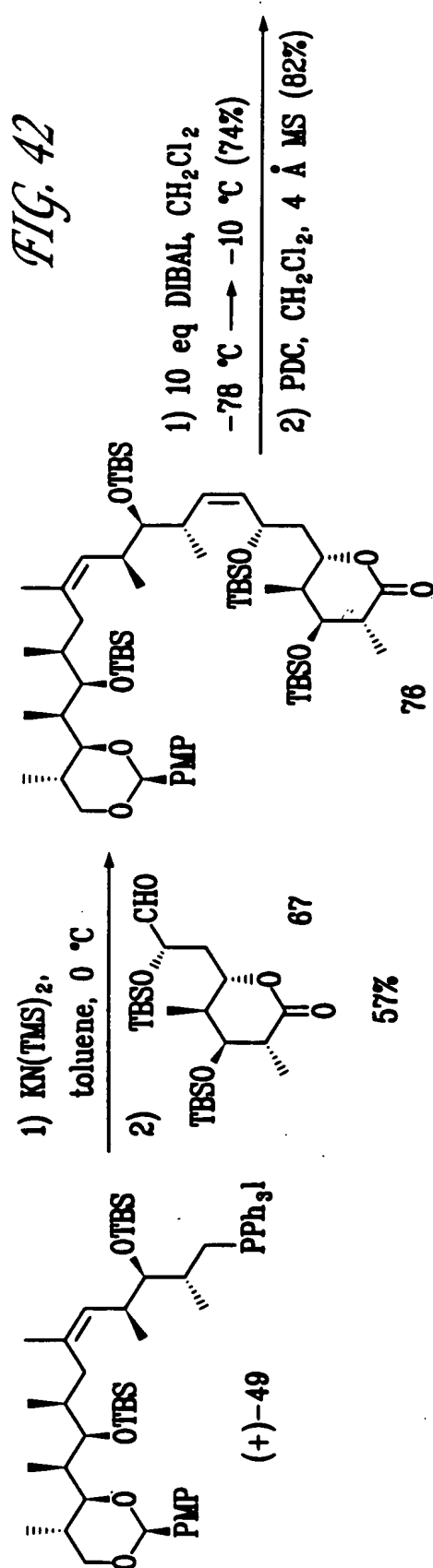
58

42%

36 / 48



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549 292



37, 48

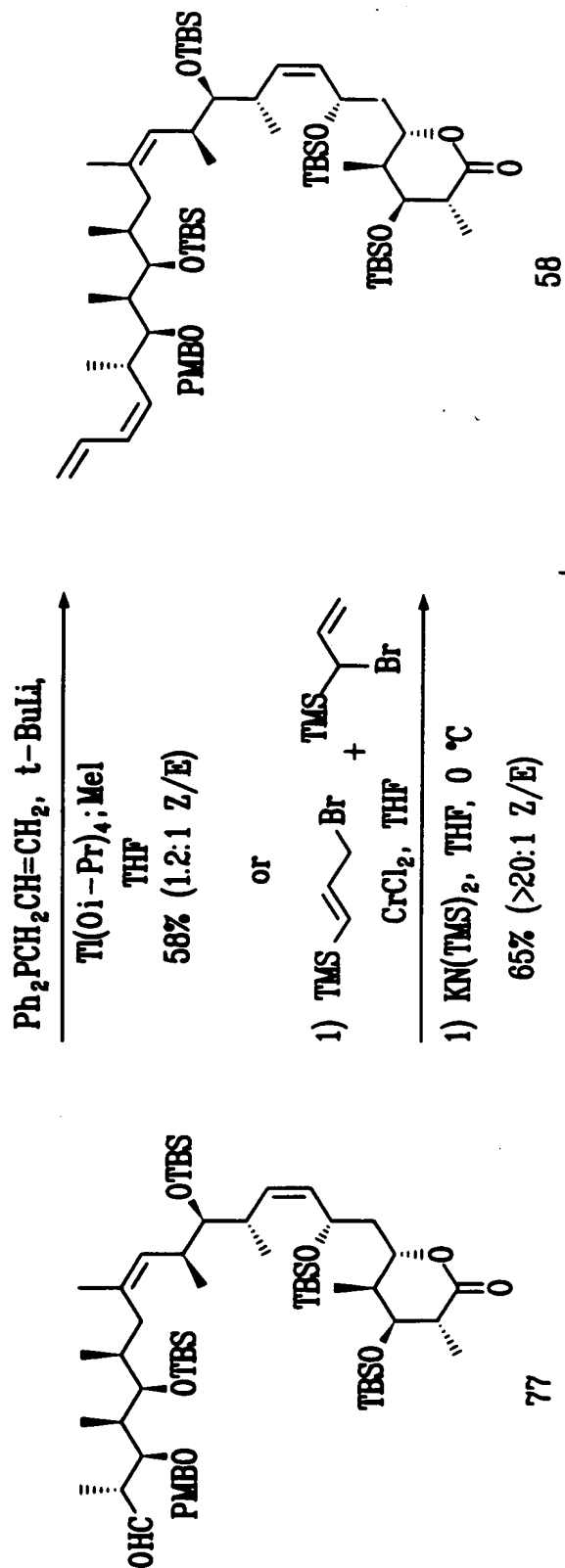
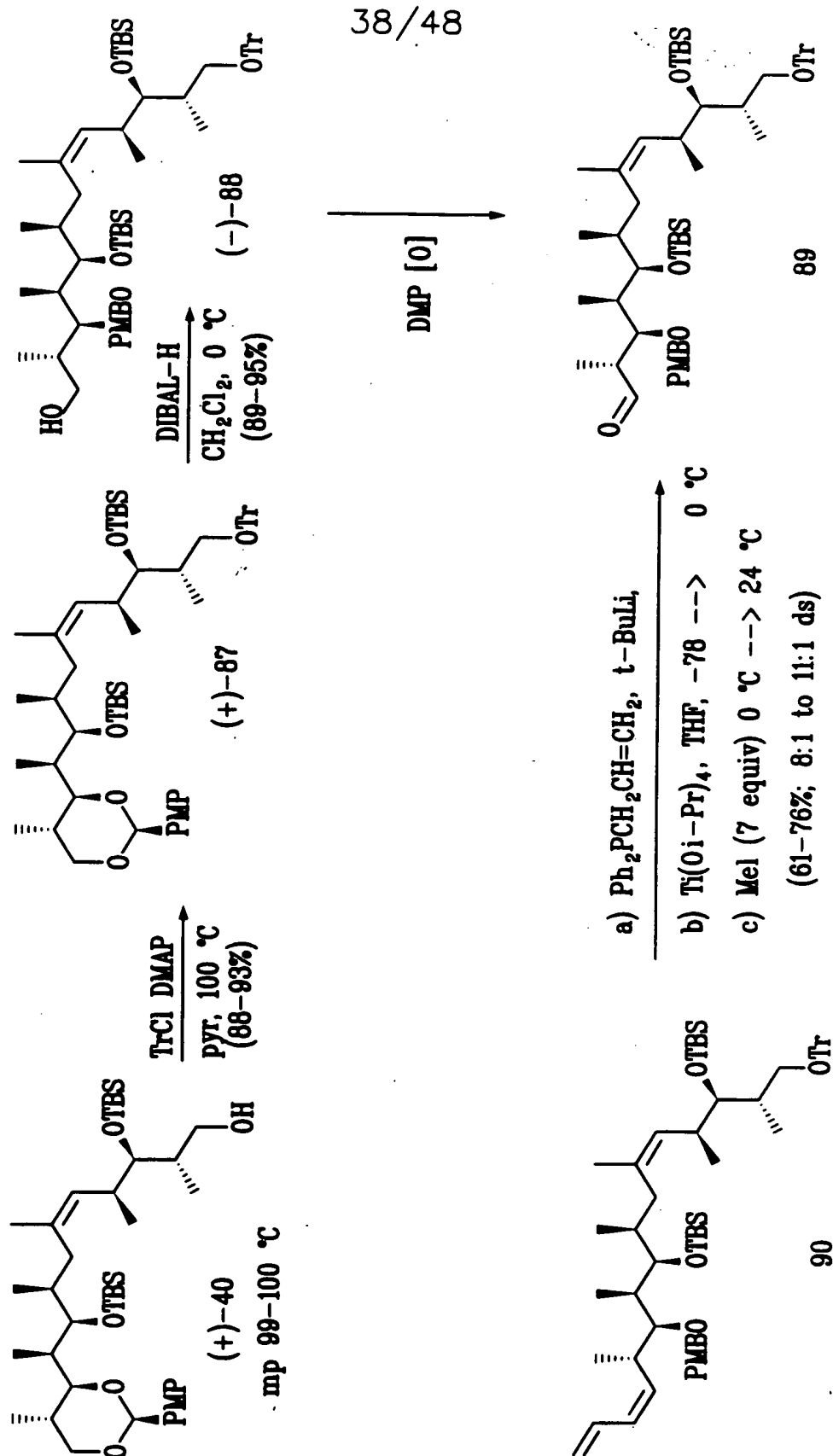


FIG. 43

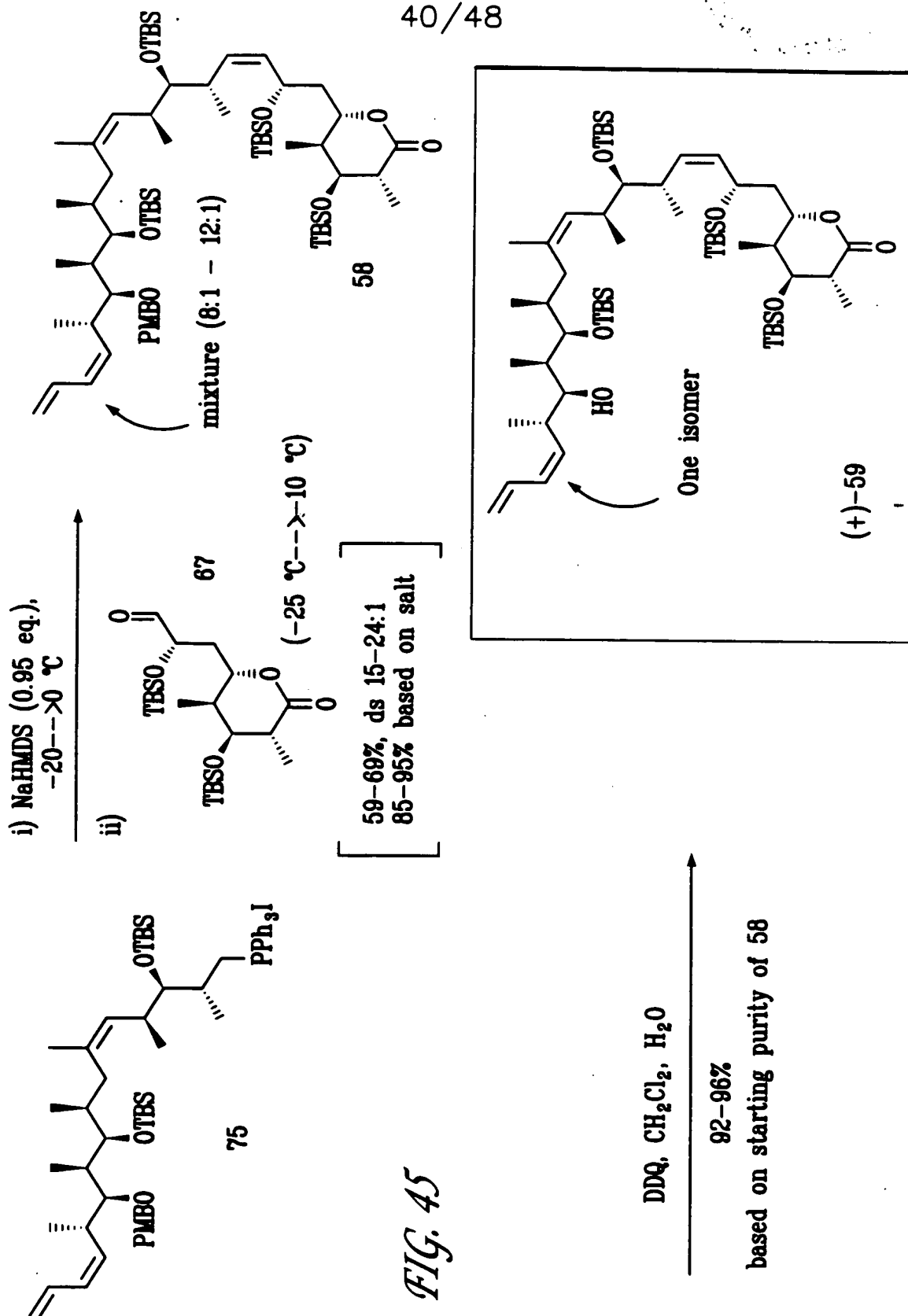


38/48

DMP [0]

90

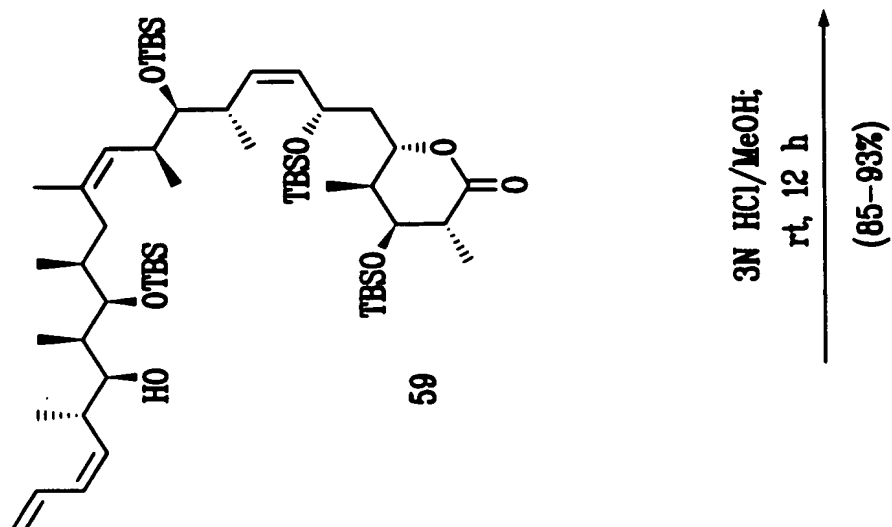
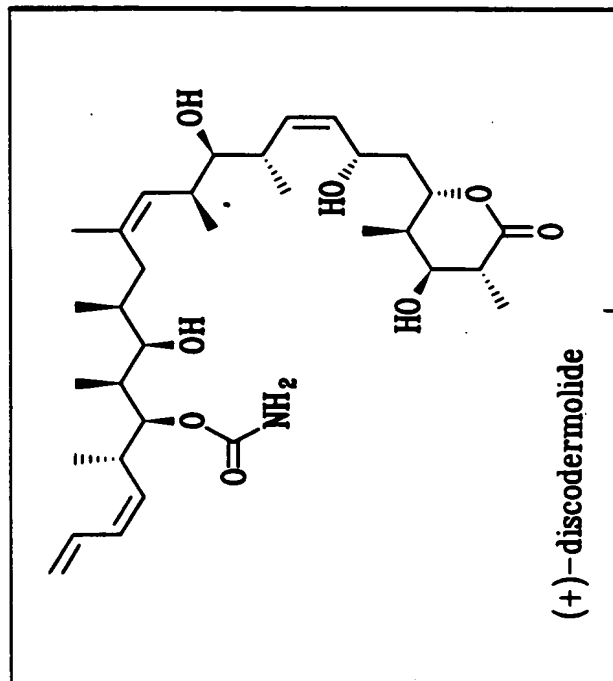
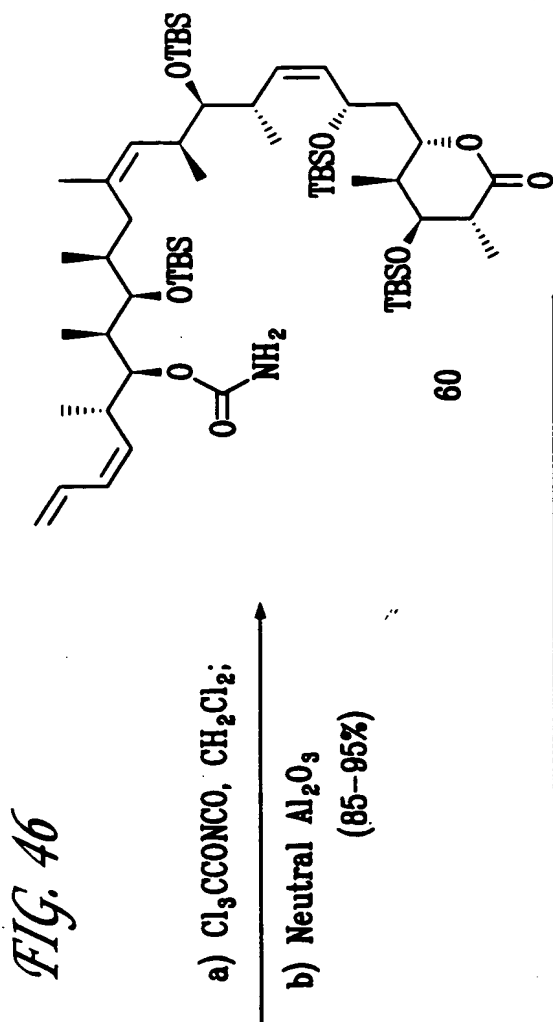




**based on starting purity of 58**



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	549 292



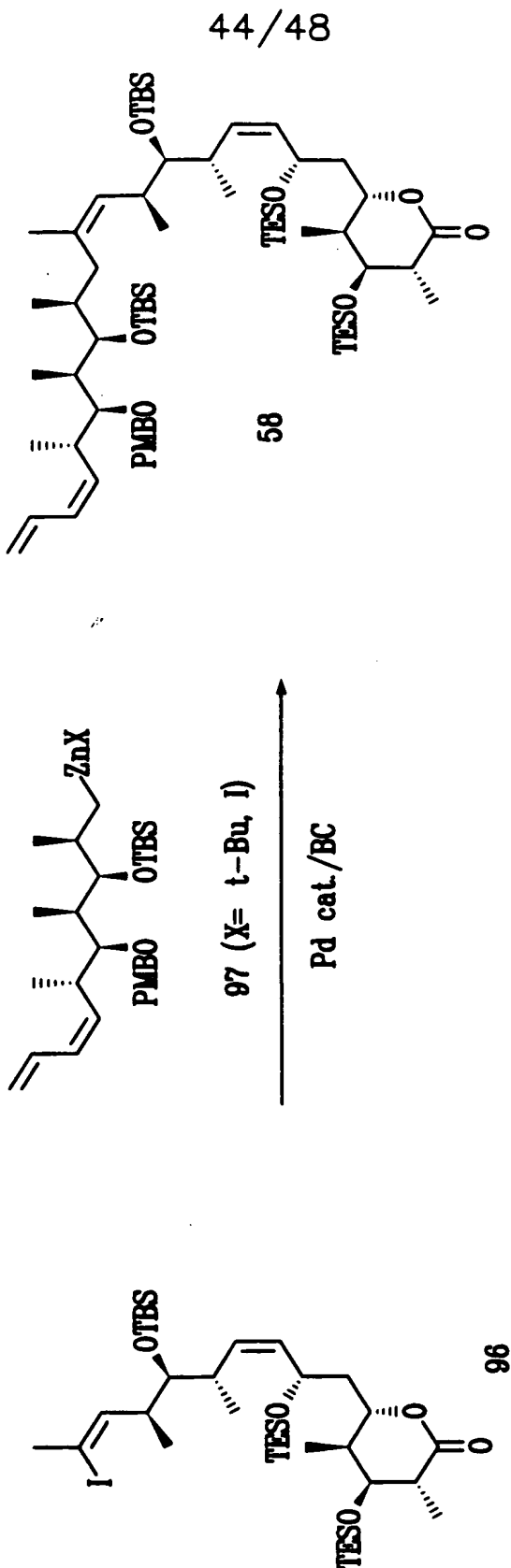
202210 6260260





FIG. 49

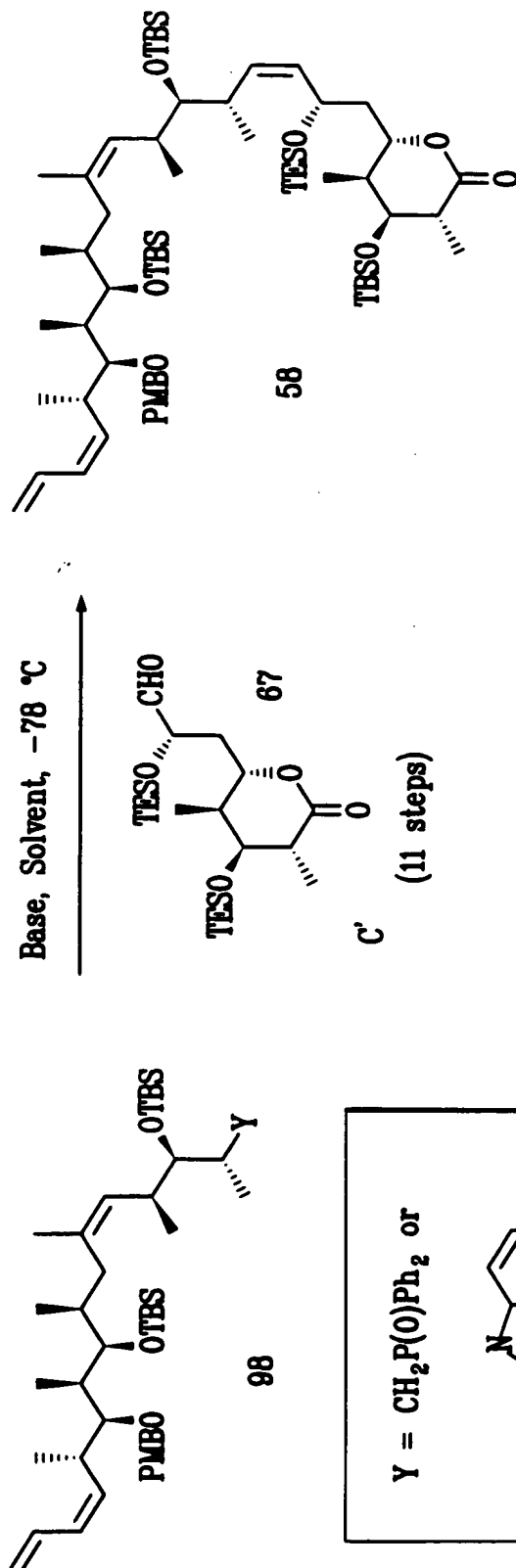
APPROVED BY DRAFTSMAN	O.G. FIG.	
	CLASS 549	SUBCLASS 292



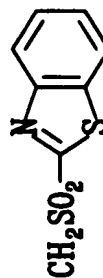
APPROVED BY DRAFTSMAN	O.G. FIG.	
	CLASS 549	SUBCLASS 292

200310 620212

FIG. 50



Y = CH<sub>2</sub>P(O)Ph<sub>2</sub> or



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	542 292

FIG. 51

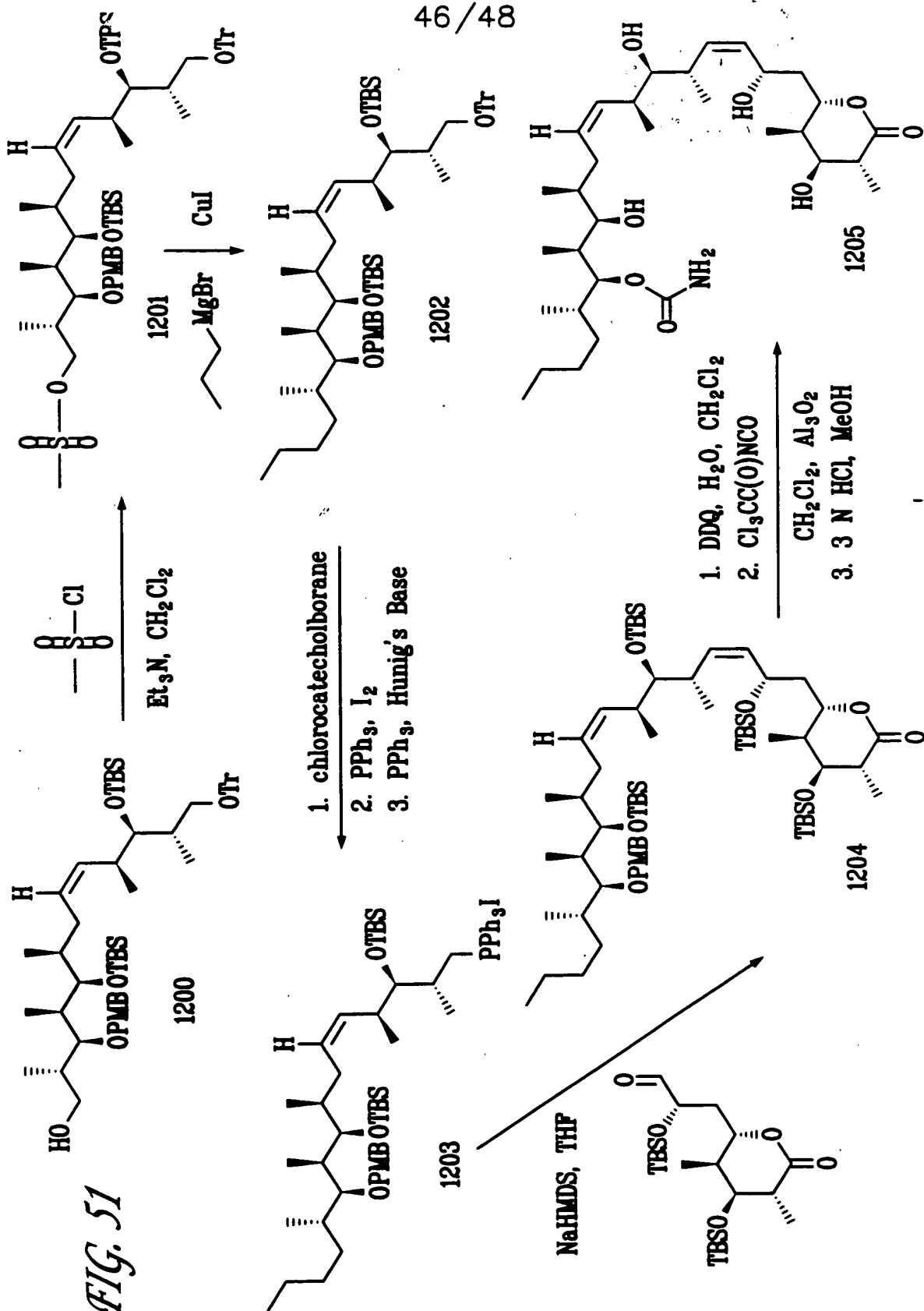
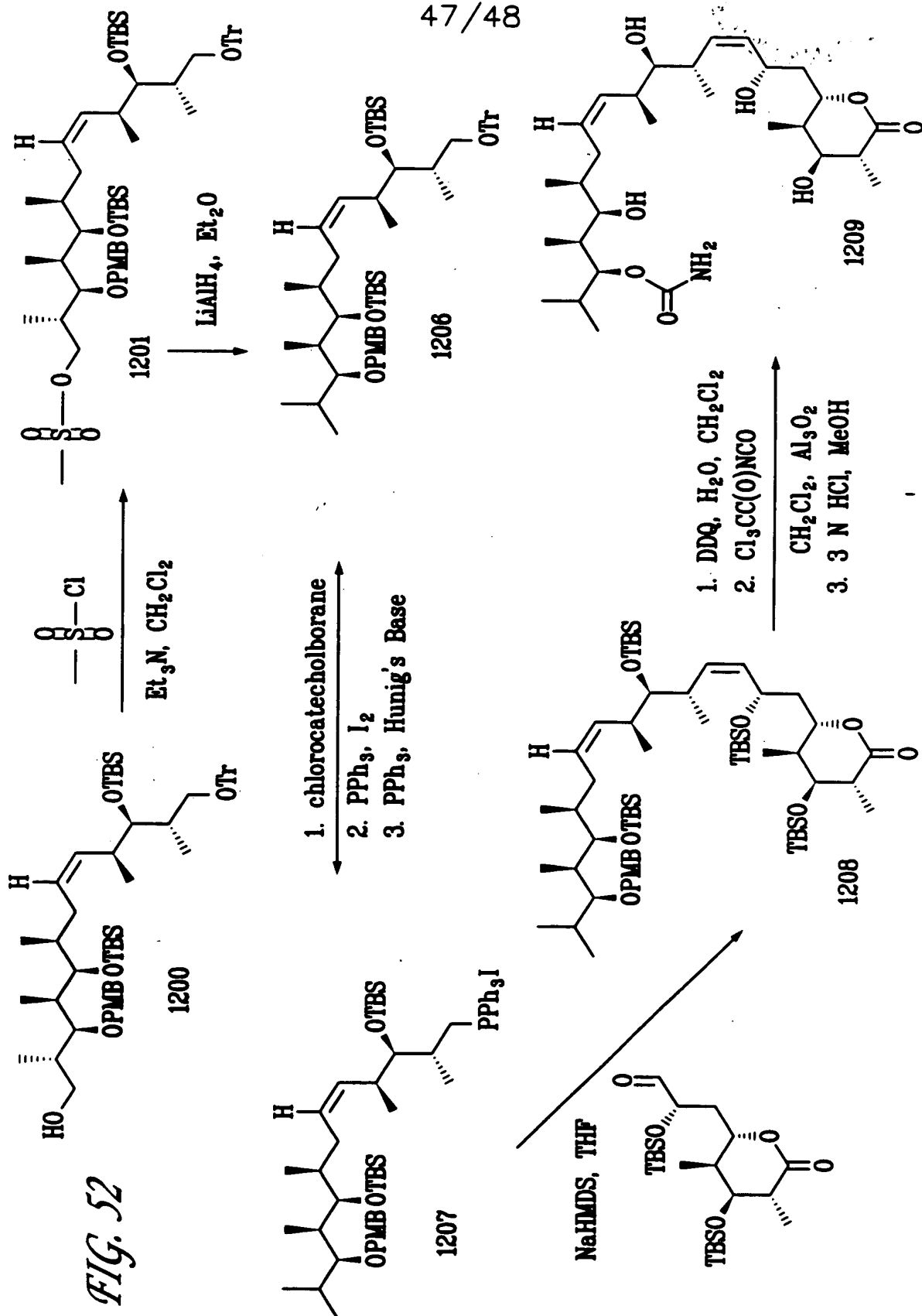


FIG. 52



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS
	542 292

FIG. 53

